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Essays using Experimental Methods to Answer Social Choice

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ABSTRACT

ESSAYS USING EXPERIMENTAL METHODS TO ANSWER SOCIAL CHOICE

BY

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This dissertation includes three chapters that utilize experimental methods to answer questions relating to social choices. Social choice is a broad category that can incorporate an individual's choices when it comes to charitable giving, providing a public good or creating externalities through one's choices.

In the first chapter "To Be or Not To Be Corrupt: An Experimental Study on Bribery" I designed a modified version of the bribery game used in Abbink et al. (2002) to study whether information on the prevalence of bribery activity within the experimental environment has an effect on behavior. In addition it also tests whether this prevalence effect can be reduced by implementing a strict punishment.

In the second chapter "Can Cooperative Behavior Improve Efficiency in Public Good Provision?" laboratory experiments are used to test whether information about the cooperative behavior of the group members in a trust game affects contribution to a public good game. The first part of the design utilizes a trust game to measure the cooperative behavior of the subjects. This information is provided in the public goods game to see if there is an effect on contributions. The essay also looks at if there is an effect on contribution, and if that effect lasts over time or it merges towards a selfish-man equilibrium of no contribution.

The third chapter “Means and Ends in Charitable Giving for Environmental Protection: A Discussion” conducts a discussion on the charitable giving literature related to environmental charities and builds a simple model of warm glow to show that the attributes of an environmental charity may affect giving. The model can also be used to consider attributes on how the money is used. For example, whether there is a difference when a market-based mechanism like Payment for Environmental Services (PES) is used versus more traditional mechanism like education on alternative livelihood. It then proposes a possible design for a field experiment to test the hypotheses.

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ACCEPTANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Economics in the Andrew Young School of Policy Studies of Georgia State University.

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Chapter I: To be or not to be Corrupt: An Experimental Study on Bribery

Introduction

Corruption is a phenomenon that has been in existence for a very long time. Though known as a macro level problem, the effect of corruption is felt on an individual level, especially in the developing countries. It comes as no surprise, that this problem has been studied extensively empirically and is still a matter of importance in development topics. Corruption has been defined in several ways in the existing literature. The most popular and common definition found in literature is "the abuse of public power for private benefit (564, Tanzi)". It is a major problem in developing countries, and a recent survey report by Transparency International shows that around three-quarters of the 178 countries surveyed shows significantly high levels of corruption.

In the day and age of globalization, these high levels of corruption are no longer a domestic problem faced by developing countries, but have become a significant global problem, since developed countries face the problem when conducting business with these corrupt developing countries. Wei (2000) concludes in his paper that within capital importing countries, the more corrupt countries have lower levels of Foreign Direct Investment (FDI), as well as their composition of capital flow is distorted with more foreign loans than investments. This is one of many examples in the literature on how corruption at a local level in a country has a global effect[1]. Measuring corruption empirically is another big challenge, and researchers have utilized corruption indices and surveys of firms as a couple of methods to measure the severity of corruption. Despite the challenge of measuring corruption, vast amounts of literature exist on

[1] Laurance (2004) finds that official corruption can lead to degrading of biodiversity and misuse of natural resources. Leys (1965) discuss problems of corruption. Eigen & Eigen-Zucchi (2003) looks at how corruption affects the composition of global public goods, and how reducing corruption itself is a global public good. Lambsdorff (1999) discuss how high levels of corruption are associated with poverty, inequality, low investment and so forth.

corruption, its effect on investment, growth, and poverty (Lambsdorff 1999; Williams 1999). A new line of research has surfaced using experimental economics that is now looking at corruption. The phenomenon of corruption though felt on a macro level is actually a micro problem. It is individuals in a country who are corrupt and take part in bribery and so forth; thus, it is important to analyze the environmental and institutional factors that affect this behavior. So, it is a natural progression in the research that experiments should be used to analyze the behavior of individuals so that appropriate policy instruments can be designed to fight corruption.

Abbink et al. (2002) were the first to design a bribery game to test levels of corruption, and whether negative externalities and risk of getting caught have an effect on the level. This paper utilizes a modified version of the bribery game[2] used in Abbink et al. (2002) to answer whether prevalence of bribery in a system, higher risk of getting caught in general, and also risk of getting caught in the case where bribery is prevalent has an effect on the level of corruption or bribery. The bribery game is a modification of the original trust game, and in this paper, level of corruption is defined as the amount of bribe sent by first mover and/or the frequency of inefficient outcomes chosen by second mover. In addition, this paper will test Axiom R from revealed altruism theory (Cox, Friedman & Sadiraj 2008) to see if this modified trust game also provides support for altruism and reciprocity. The paper is organized as follows: section I provides an introduction along with a brief overview of the past literature on corruption, both empirical and experimental; section II gives an overview of the bribery game; section III explains the design and procedure of the experiment, and explains the hypotheses; section IV tests Axiom R; section V provides results and section VI concludes the paper. The instructions and examples of the payoff tables are included in the appendix.

[2] This paper uses the version from Abbink et. al. (2002) that has the negative externality in the game and separates the active players from the passive players within a subgame.

Past Literature

Empirical Literature

Past research on the effect of corruption has shown two conflicting results. Some research finds a positive effect of corruption on growth, stating that it speeds up the process and helps go through government red tape and bureaucracy (Leff 1964; Huntington 1968), while others support a negative effect of corruption on growth and investment (Mauro 1995). Recent research has shown that low levels of corruption are beneficial for growth and it becomes detrimental at higher levels of incidences (Mendez 2006). The research conducted on this topic is very extensive, and even though earlier research shows that corruption is grease for the wheel of growth in developing countries, more recent works conclude that corruption negatively affects growth. Alonso-Terme et al. (2001) showed corruption leads to more income inequality and poverty. Fisman and Miguel (2007) conducted a natural experiment on parking ticket violations by United Nation diplomats in New York and found that diplomats that were from more corrupt countries had more unpaid parking tickets, implying that cultural norm played a role in how corrupt a person was, but also found that with legal enforcement those diplomats paid the tickets. One of their other findings is that diplomats who were from low corrupt countries had more unpaid parking tickets as they stayed in New York longer. Fisman and Miguel (2007) suggest that the more corrupt diplomats' behavior influenced the non-corrupt diplomats to be more corrupt, and instead of converging to a low corruption state, corruption increased. Fisman and Miguel (2007) paper does not have a counterfactual on how the diplomats behave when they are driving cars without a diplomatic license plate, which would provide a clearer understanding of whether they behave differently. However, the diplomats' personal cars also have diplomatic license plates, so they might not have any cars with regular plates and thus that information

cannot be collected. Fisman and Miguel (2007) paper provides the motivation for my research question to test effect of prevalence on corruption.

Experimental Literature

Experimental literature on corruption is relatively new compared to its empirical counterpart, and one of the first attempts can be seen by Abbink et al. (2002) in their paper where they develop a bribery game and test to see if negative social externality and risk of getting caught has an effect on corruption. They found that negative social externality does not have any effect on the level of corruption; however the risk of getting caught and losing everything does decrease corruption. In the above paper the framing of the question was neutral so Abbink and Hennig-Schmidt (2006) tested to see if neutral versus loaded framing had an effect on corruption, and found that phrasing the action as bribery did not have an effect on corruption. Barr and Serra (2009) also show that there is no framing effect on corruption, especially on the public official's actions, but there is an effect of higher negative externality on corruption. Abbink (2004) went on to suggest ways to reduce corruption by testing experimentally if staff rotation decreased corruption, and he found that it significantly decreased the level of bribes as well as the frequency of inefficient decisions by the public officials. While researchers were testing corruption in the laboratory, Armantier and Boly (2008) were testing the validity of whether it can be tested in the laboratory. They conducted the same experiment in the laboratory in Canada and in the field in Burkina Faso and found that the direction and magnitude of the treatment effects were statistically indistinguishable between the two environments, which suggest the validity of laboratory experiments on corruption. However, they did find that while increasing the amount of bribe in the laboratory had no significant effect on corruption, it did have significant effects in the field. In the small span of time since its emergence in experimental

literature, a lot has been researched on what affects corruption; there still remain many more questions that need to be answered. This paper will contribute to the growing literature on corruption by analyzing the effect of prevalence and higher risk of getting caught on levels of corruption utilizing the controlled lab experimental methods. The paper will extend the literature by modifying the bribery game which will enable us to disentangle the effect of negative externality and the effect from having an inter-connected payoff function; secondly it will look at the dynamic effect of prevalence of bribery in the system on bribery behavior and lastly how increased risk affects behavior. This paper hypothesizes that if bribery is prevalent in the system, then it would encourage non-corrupt members to also behave corruptly thus increasing level of corruption and higher risk of getting caught even in an environment where corruption is prevalent will decrease corruption.

Bribery Game

The bribery game used in this paper can be related to the case of bribery found in civil servant scenario, where the public officials are not elected by the people and does not feel any direct obligation to the people to do what's right for the people. The scenario focuses more on bribees who are doing a job like tax collector, police and so forth. Corruption is defined in this paper as scenarios where briber is offered, bribe is offered and accepted, bribe is offered, accepted and the second mover chose the socially inefficient outcome. The characteristics of corruption that are used to design the bribery game consist of the following:

- Reciprocity relationship between bribers and public officials; mutually beneficial
- Negative welfare effects
- High penalties when discovered

The first characteristic implies that there are mutual gains from taking part in the corrupt behavior and thus the briber and bribee can develop a relationship based on mutual trust and reciprocity. However, these mutually beneficial relationships give rise to negative social externalities. The relationship is also characterized as being risky in one of the treatments, since if caught both lose everything earned in the experiment.

The game is set up as a ten- player game, which can be of three types; they are the firm or briber identified as Player 1, and the public official or bribee identified as Player 2 and the other 8 players are type 3 who are common people, and they are passive players in the game. In summary we have two decision makers and 8 passive players. These common people are present to incur the negative social cost from the bribery activity. The game can be represented as follow:

G= {N=10, Type: First Mover, Second Mover, Common People}

Strategy Sets for First Mover: S_{FM} : {{Bribe, Not Bribe}, {T: 1…9}}

Strategy Sets for Second Mover: S_{SM} : {{Accept, Not Accept}, {X, Y}}

Payoffs: $\{\pi_{1|X \text{ or } 1|Y}, \pi_{2|X \text{ or } 2|Y}, \pi_{3|X \text{ or } 3|Y}\}$

The payoffs for choice X when no bribe is sent is 36 experimental dollars (ED) to both active players, and no loss to the passive players, and the payoff for choice Y when no bribe sent is 56 ED for Player 1 since it is a favored option for Player 1 and 30 ED for Player 2, and the passive players each incur a loss of 6 ED. The payoff is lower for player 2 to choose the socially inefficient option Y since it comes with the cost of justifying the option to other officials. There is a cost of 2 ED to Player 1 if he/she decided to bribe which is incurred regardless of Player 2's decision of Accept or Not Accept the bribe. This is the transaction cost of initiating the bribery relationship.

Let us assume that,

Z= Transaction Cost
T= Transfer Amount
β= Number of Corrupt Group

So payoffs are given as below:

Payoffs: **If X is chosen**:

$\pi_{1|X} = 36 – Z - T$ $\pi_{2|X} = 36 + (3*T)$

If Y is chosen:

$\pi_{1|Y} = 56 – Z – T$ $\pi_{2|Y} = 30 + (3*T)$

The above payoffs apply to both Accept and Not Accept, and Bribe or Not Bribe scenario, since T and Z can be zero in case there is no bribe sent or bribe is not accepted.

$\pi_{3|X} = 0$ (Socially Optimal Choice)

Common People Negative Externality: $\pi_{3|Y} = (6*\beta)$: Per Person.

(6 *8)=48: Total Negative Externality in System per Corrupt Action per Period

(6*β)*8: Total Negative Externality in System from all Corrupt Action per Period

Total number of active pairs is 8, so at the maximum if β=8, then single common person maximum damage is 48 ED per round.

The briber or First Mover (FM) wants to get a permit, for example, from the Second Mover (SM) which is favorable to the FM, but it is socially inefficient and unfavorable; where socially inefficient is defined as a loss of 6 ED per common person, every time the unfavorable option Y is chosen. To influence the SM, the FM will try to transfer a positive monetary amount that might make the public official choose the socially inefficient outcome Y. There is an initial cost to the briber of 2 ED for deciding to offer a bribe regardless of whether the bribe is accepted or

not; in addition there is a cost equal to the amount that the firm decides to give the SM, if bribe is accepted. The bribe is tripled when given to SM to reflect the difference in marginal utility, between the two players.

The SM has the choice to accept or reject the bribe, and after that to decide between the two options: the socially optimal (X) where there is no social cost associated versus the socially inefficient option (Y). The payoffs[3] are designed so that if the socially inefficient outcome (Y) is chosen then the net benefit for the pair involved in the corrupt action is less that the total loss of common people in the system. The game tree for the simple baseline game is given below.

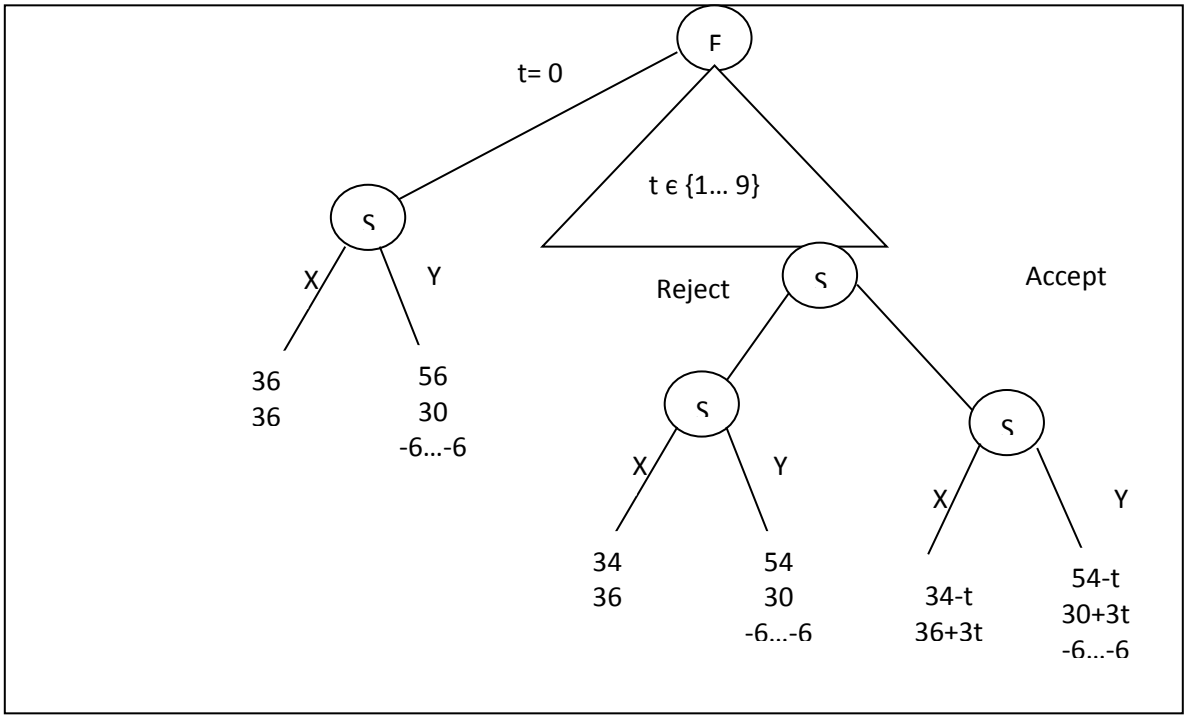

Figure 1 Baseline Treatment

From the game setup in Figure 1 we can see that in all choice options X is better than Y for Player 2 in terms of payoffs since it provides him or her with an extra 6 ED, and if we assume economic man preference Player 2 will choose X to maximize payoff. Knowing that Player 2

[3] See page 11 for the payoff equations

will pick X, it is payoff maximizing for Player 1 to never transfer any money. Thus by backward induction method we find the equilibrium play for the stage game assuming economic man preferences is to choose not to bribe and to choose X. However, past results show that subjects divert from this play. This is the set up for the simple bribery game along with possible equilibrium and the game for the baseline treatment is shown in extensive form in Figure 1 where F denotes First Mover, S is Second Mover, *t* is the transfer amount by first mover which is between {0,…, 9}, and the third payoff shown is for the 8 common people.

Design and Procedure

The game will be played with 24 subjects selected from a database of undergraduate students among which 8 will be randomly selected to be passive players or common people. They will have no decisions to make in this experiment, but will perform an unrelated task to earn money which will be reduced if they incur any negative externality due to corruption in system. The unrelated task that the passive players will perform is an effort task, specifically adding numbers together to earn their payoffs. They will be given a maximum of 10 addition problems per period, earning them 6 ED per correct answer. So, if they get all 10 answers correct they can earn 60 ED per period before any social loss deduction. If all 8 groups choose option Y, and create a total loss of 48ED for each of the passive players, then at a maximum the passive player can earn 12 ED per period. Before the beginning of the experiment, there will be three practice rounds of the effort task, which will be played by both active and passive players. This will ensure that the active players understand what the passive players are playing and also understand that these players are putting in effort to earn the money. So when the active players consider imposing a negative externality, they will realize that they are taking away money that was earned by the passive players, not just free money given to them. In addition all the subjects

will complete a questionnaire that will try to measure the risk aversion of individuals using the Holt & Laury (2002) risk task. The 16 other subjects will be randomly paired with another subject and assigned as either player 1 or FM and player 2 or SM. The game will be played for 30 rounds, and the subjects will have the same role and pair for the entire experiment. Each subject will only play one of the treatments. The payoff will follow a double blind payoff and pay-all-sequentially (PAS) protocol; also a $5 participation payment will be given. In the Pay-All-Sequentially (PAS) protocol, the earnings from each period will be communicated to the subjects, and they will receive the cumulative earnings from all periods at the end of the experiment. Traditionally fairness games are one-shot games, but this paper utilizes repeated game since one of the treatments namely Prevalence Treatment (P) requires information on corrupt behavior of groups from previous rounds to gauge the level of corruption in the system. The paper also deviates from traditional norm of pay-one-randomly (POR) to use pay-all-sequentially (PAS). Pay-One-Randomly (POR) is a payoff protocol where one period is selected at random using a bingo cage or die roll to determine payoff. Cox, Sadiraj and Schmidt (2015) provide a detailed discussion on the properties of the two payoff protocols mentioned in this paper. This is done mainly because in the Sudden Death Treatment (SD) the subjects have a chance of being caught each round and losing all their earnings. If a POR payment mechanism was chosen, then even if the subjects lose everything in one round, they still will have a possibility of getting paid if a different round is paid out. This would invalidate the treatment. Along with the written instructions a brief introduction will be given at the beginning of each treatment to explain the instructions and payoff table. The subjects will be provided with a payoff table[4] showing all the possible payoffs for the different decisions, so that there is transparency in payoffs and there is no confusion among the subjects. This is a between subjects

[4] The payoff table is shown in Appendix B

design, and the experiment will be computer based; the screen will provide information on actions undertaken by the other player in the pair and the possible choices that this player in the pair has. Player 2 decision window in the computer program will also show the potential paired payoffs that the two players face for both option X and Y. The framing of the questions will be neutral since past research showed no effect of framing on corruption[5].

Player 1 moves first, and then player 2 makes decisions. Since corrupt behavior creates negative externality the game will create a loss of 6 ED to each of the 8 passive subjects when there is a corrupt transaction and the socially inefficient outcome (Y) is chosen. The 16 active players will be informed of this cost that the passive players incur due to the corrupt behavior, but they will not know the exact amount of total loss in the environment per round. If the pair is corrupt, they will know that they have created 48 ED loss to the 8 common people since they know that corrupt behavior creates 6 ED loss per common person, and there are 8 of them, and the group also knows whether they were corrupt or not. This paper deviates from Abbink et al. (2002) bribery game designs to introduce passive players that incur the social cost so that the effect of negative externality on corrupt decisions can be disentangled from the effect of having interconnected payoff functions. Abbink et al. (2002) show that there was no effect of negative externality on corruption, but this could have been due to the fact that the players who were making the corrupt decisions in turn were also affected by negative externality from other pairs, so they integrated the externality into their decision as a personal loss and not a social loss. Having separate passive players, the externality is strictly on individuals who are not decision makers themselves, and the pairs might feel bad about inflicting loss on people who have nothing to do with the decision and cannot be corrupt themselves to earn more money. There will be

[5] Abbink & Schmidt (2006) show that framing the game as a bribe and labeling the players as firm and public official had no effect on the level of bribe.

three distinct treatments in the experiment, Baseline (B), Prevalence Treatment (P) and Sudden Death (SD) and three more treatments which will be a combination of Prevalence Treatment and Sudden Death treatment. In the Baseline treatment the groups are not told the total social cost in the environment so the level of corruption in the system is unknown. The Baseline game will be played in the following way:

1. Each player paired randomly with another in the group of 16 active subjects.
2. Assignment of roles to the subjects in each pair.
3. Player 1 moves first and makes a decision of whether to offer a bribe or not.
    I. If player 1 does not offer a bribe then game moves to player 2 who decides between two outcomes X and Y.
    II. If player 1 decides to offer a bribe, his or her account balance immediately decreases by 2 ED; this is the transaction cost of offering a bribe. Then player 1 chooses an amount of bribe to be sent to player 2. They can send any integer amount of bribe in the range between 1- 9 ED. That amount is deducted from player 1's account if player 2 decides to accept the transfer.
4. If bribe is sent player 2 now faces the decision of whether to accept or reject the bribe.
    I. If bribe accepted, player 2's account is credited with tripled the amount of the bribe; then player 2 has to make a binary choice of whether to choose the option favorable to player 1 (Y) or choose the socially optimal option (X). The payoff is induced such that for player 1 option Y gives the highest payoff. If player 2 chooses the socially inefficient option (Y), then the 8 passive players experience a loss of 6 experimental dollars (ED) each.

II. If bribe is rejected player 1's account balance only decreases by the transaction cost, and player 2 does not have any change in their account balance. Player 2 makes a decision to choose between the two options: X and Y.

As mentioned earlier, the payoffs[6] are designed so that if the socially inefficient outcome (Y) is chosen then the net benefit for the pair involved in the corrupt action is less that the total loss of common people in the system. Suppose 1 out of the 8 group is corrupt, and player 1 sends the maximum bribe possible of 9 ED and player 2 selects Y. So the net benefit to the pair of choosing to be corrupt compared to be not corrupt is 30 ED, whereas the total loss in the system is 48 ED. So it is not a socially optimal outcome to choose a corrupt action. The total amount of losses per round experienced by the common people are not reported to the subjects in the baseline treatment (B), since corruption is a secret activity in the baseline game, so the subjects do not know who are corrupt or how many pairs are corrupt in the system, they only know if their matched subject is corrupt or not. In the Prevalence Treatment (P) they have complete information of the level of corruption in the system. The payoff to Player 2 for choosing Y is lower than choosing X, so if player 2 chooses the socially inefficient option, it might be an indication that this behavior might be due to reciprocity and/or other regarding preferences towards the First Mover, since it does not maximize his payoff to choose that option per round. In the Baseline treatment there is no information provided on total negative externality, it is only testing the level of corruption in the system. The level of corruption is measured by the amount of bribe sent, the frequency of bribe sent as well the number of times the socially inefficient option is chosen. The instructions and payoff tables are included in the Appendix.

In the first treatment, titled Prevalence Treatment (P), a participant's corrupt activity is known to others without identification of who they are. For example, if 5 out of the 8 pairs were

[6] See page 11 for the payoff equations

involved in corrupt activity last period, this information is available to all, so that they can measure the level of corruption in the system. This information is provided along with the amount of negative externality in the system in past period to provide more information about the level of corruption in the environment. If the subjects observe that a significant portion of the system is involved in corrupt activity, this might influence their decision to be corrupt as well, since it seems to be socially acceptable. This treatment is played out like the Baseline, except here corrupt behavior is shared with others after every period which was not done in the Baseline. It is hypothesized that if offering and accepting bribe is more prevalent in the system, then corruption will be higher compared to Baseline. This is hypothesized from evidence we observe in developing countries, where it is common knowledge that public officials accept bribes, and they need to be bribed to get any work done by them. In this situation people do not even consider the negative connotation attached to the activity, and offer or accept bribes freely. In the laboratory, if the environment is designed where it is the norm to accept bribes, or where subjects observe others offering and accepting bribes then this might influence their decision to be involved in bribery as well. So this paper hypothesizes that in the treatment where bribery is prevalent we would expect higher levels of bribery. In other words, we would expect:

$$Level\ of\ Corruption_{P} > Level\ of\ Corruption_{B}$$

In treatment 2, identified as Sudden Death (SD), I introduce the probability of getting caught, and also change the probability between 0.03 and 0.10 per round. If r denotes the number of rounds in which a positive bribe is accepted, then the probability of falling prey to the sudden death is $1-(1-p)^{r}$, where p =0.03, 0.10. At the maximum if r =30, then overall probability of sudden death is 0.598 for p=0.03, and probability of 0.957 for p=0.10. These probabilities allow

for significantly high aggregate likelihoods of getting caught over the duration of the session, and we should expect an effect on the bribery activity.

The SD treatment is played like Baseline, except once a positive bribe is accepted by player 2 irrespective of whether it influenced his or her choice from the options, a lottery is played out where a number between 1 and 100 is randomly selected and in the case of p=0.03 if 1, 2 or 3 comes up then both the players are disqualified from future play and all their earnings are lost. Any other number picked will let them move on to the next round. Same process for p=0.10. The lottery is played out once for everyone after every period regardless of whether some groups are corrupt or not. This controls for any information on corrupt behavior that the other groups might get from seeing one group playing out a lottery. Information on how many groups encountered the sudden death will be provided at the end of each round after the lottery is played out. If the players are disqualified then they will be given access to a browser to pass time so that they have less motivation to leave the lab early. However, the subjects cannot be forced to stay in the lab, so we have to be prepared for some subjects leaving the lab in case they lose all their earnings, but we will not explicitly give them the option to leave. If they want to leave, we will pay them the show up payment on their way out. In the sessions conducted, no subject left the lab before the end of the experiment. The extensive form of the sudden death treatment is shown below in Figure 2 with p=0.03 and the hangman signifies that both players are disqualified. F signifies the first mover or player 1, S is for the second mover and C represents the lottery play, *t* is the bribe offer which is between 1 and 9. The end payoffs are the payoffs for both players as well as the loss of 6 ED to the common people. In this treatment, the hypothesis is that if there is risk of getting caught and losing everything, corruption will be lower, and will decrease further as risk of getting caught increases. However, we can expect to see the average

amount of bribe sent to be higher than Baseline, since the first mover has to create a bigger incentive for second mover to accept the more risky option. Past research confirms that the risk of getting caught will make people less open to being involved in bribery[7], so I expect to see the same kind of behavior, and furthermore observe that if the chances of getting caught increases then corruption decreases further.

Level of Corruption $_{SD}$ < Level of Corruption $_{B}$ and decreases as p increases.

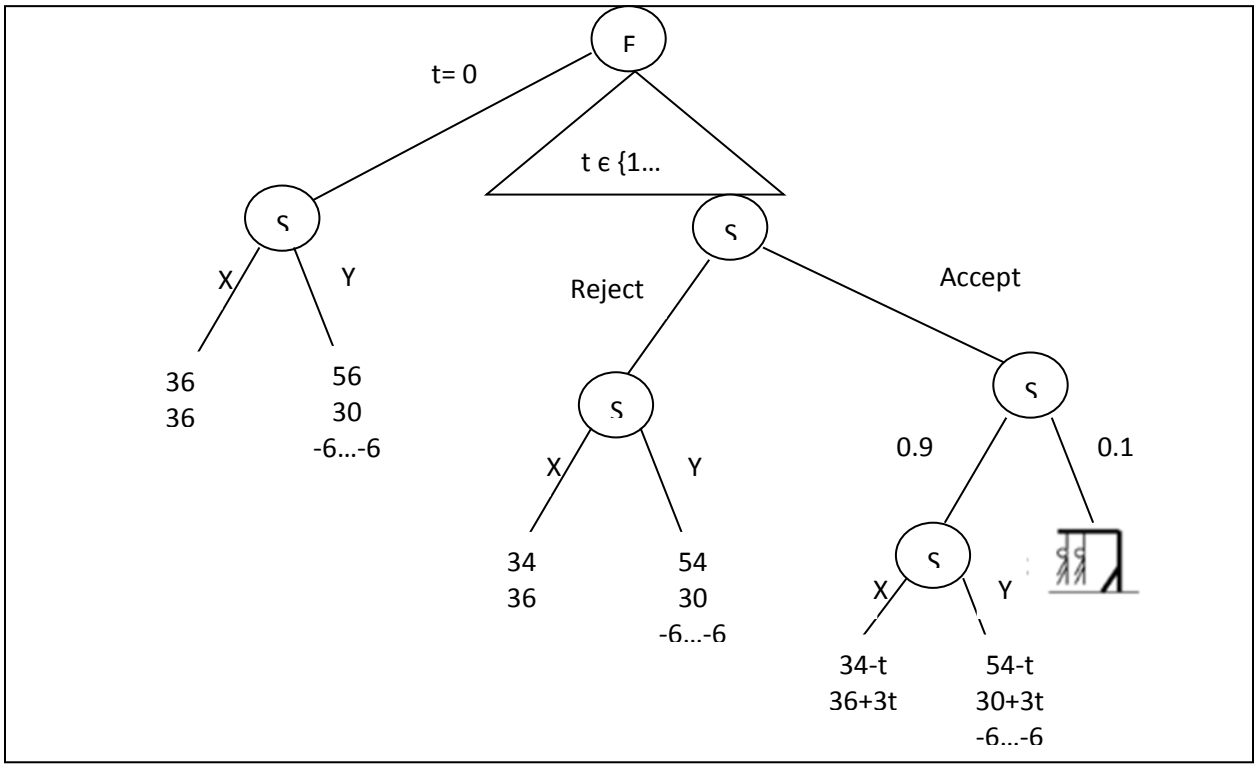

Figure 2 Sudden Death Treatment Extensive Form

The last treatment (P&SD) will be a combination of P and SD, where everyone will know about the amount of corruption in the system, but also the chance of getting caught is imposed. If the level of corruption from this treatment is compared to the level from P this will show the

[7] Abbink et. al. (2002)

marginal effect of the risk of getting caught on corruption even in a society where corruption is the norm. The third hypothesis is a test of the finding by Fisman et al. (2007) where they found that even people who came from countries where cultural norm was corruption showed lower levels of corruption when legal enforcement was implemented. So in the lab for the fourth treatment we would expect that even in presence of cultural norm, risk of getting caught and losing everything will decrease corruption.

$$Level\ of\ Corruption_{P\&SD} < Level\ of\ Corruption_{P}$$

The treatments are summarized in the following table:

	Baseline (B)	Prevalence Treatment (P)	Sudden Death (SD)	P & SD
Information on corruption Level/Amount of social loss per period	No information	Provide information at end of each period on the total amount of social loss, as well as the number of groups that were corrupt.	No information	Provide information at end of each period on the total amount of social loss, as well as the number of groups that were corrupt.
Risk of getting caught	No	No	Yes Information on the number of hangings per period is provided.	Yes Information on the number of hangings per period is provided.

Table 1 Treatment Summary

Axiom R Tested

"Revealed altruism theory states that an individual's preferences can become more or less altruistic depending on the actions of another agent" (530, Cox and Hall 2010). Axiom R (Cox, Friedman and Sadiraj 2008) from revealed altruism theory states that in a sequential play game,

if the first mover offers the second mover a more generous set to choose from, then the second mover will reciprocate by choosing a more altruistic payoff outcome to send back to first mover. There are several studies that provide support for this axiom, one of them being the triadic design study (Cox 2004).

Revealed altruism theory defines "More Generous Than (MGT)" for a second mover to be such that it satisfies the following two conditions:

1. Opportunity set G allows second mover to achieve higher income than does opportunity set F.
2. First Mover does not increase his own potential income more than Second Mover's by offering Second Mover opportunity set G rather than F.

First Mover chooses an opportunity set C ∈ *C*, and second mover chooses the payoff vector *(m, y)* ε C. *(m, y)* is (SM income, FM income) ∈ C. Second mover knows the set of possible opportunity sets *C*, and prior to making payoff decision knows the actual opportunity set C, and acquires preferences A_C.

Then, we can state Axiom R formally below:

"Let First Mover choose the actual opportunity set for the Second Mover from the collection *C* and second mover acquires preferences A_C. If F, G ε C, and G MGT F, then A_G MAT A_F" (Cox, Friedman and Sadiraj 2008). If we consider the bribery game with only the active players, it should also follow Axiom R. We should notice that with higher amounts of transfer by First Mover, Second Mover more frequently picks Y over X. The null hypothesis tested will be:

H_0^R: For all amounts of transfer greater than 2 by First Mover, the frequency of Y chosen by Second Mover will not change.

The alternate hypothesis will support Axiom R

H_a^R: As the amount of transfer by First Mover increases, the frequency of Y chosen by Second Mover increases.

There are 8 passive players in this game as well, however these players do not directly affect reciprocity between the two active players. The transfer directly does not affect the opportunity set of the passive players, it only affects the opportunity set of the second mover. The second mover in turn reciprocates by choosing a favorable outcome for the first mover. There is reciprocity between the two players. The loss in payoff of the passive players is a by-product of the two player game. This externality might affect player behavior because they have other regarding preferences and they lose utility by harming others, but in the payoff domain, direct reciprocity is present between the two active players only since the common people does not have any direct reciprocity relationship with either FM or SM. The payoff opportunity sets are MGT ordered, so if with higher transfers we observe more Y outcomes, we can say that the preferences are MAT ordered.

Results

A total of 177 Georgia State University undergraduates were recruited for this experiment. The average earnings by session and treatment are listed below in Table 2. In the Sudden Death treatment, 4 out of the 8 groups were disqualified in one session, and 2 out of 8 groups were disqualified in one Sudden Death and Prevalence session.

Treatment	Session	Average Earnings
Baseline	1	$29.44
Baseline	2	$25.21
Prevalence	1	$25.72
Prevalence	2	$23.66
Sudden Death	1	$30.15
Sudden Death	2	$20.59
Sudden Death and Prevalence	1	$26.31
Sudden Death and Prevalence	2	$19.06

Table 2 Session Average Earnings

The dependent variables considered to test level of corruption in the system are frequency of First Mover choice to transfer, amount of transfer made and Second Mover's choice of Y. The following figures show the frequency of FM choices to transfer over the 30 periods across the treatments and frequency of SM choices to accept the transfer over the 30 periods. The trend shows that there is a slight decline in FM choice to transfer and SM choice in the Baseline and Prevalence treatment and a bigger decline in frequency in SD and SD&P treatment. The figures for frequency of SM choice of Y over 30 periods and the average amount of transfer over 30 periods across treatments are provided in the appendix A and also does not show a sharp decline to zero, but more consistent choices. These figures show that the choices are more behavior related and less strategic.

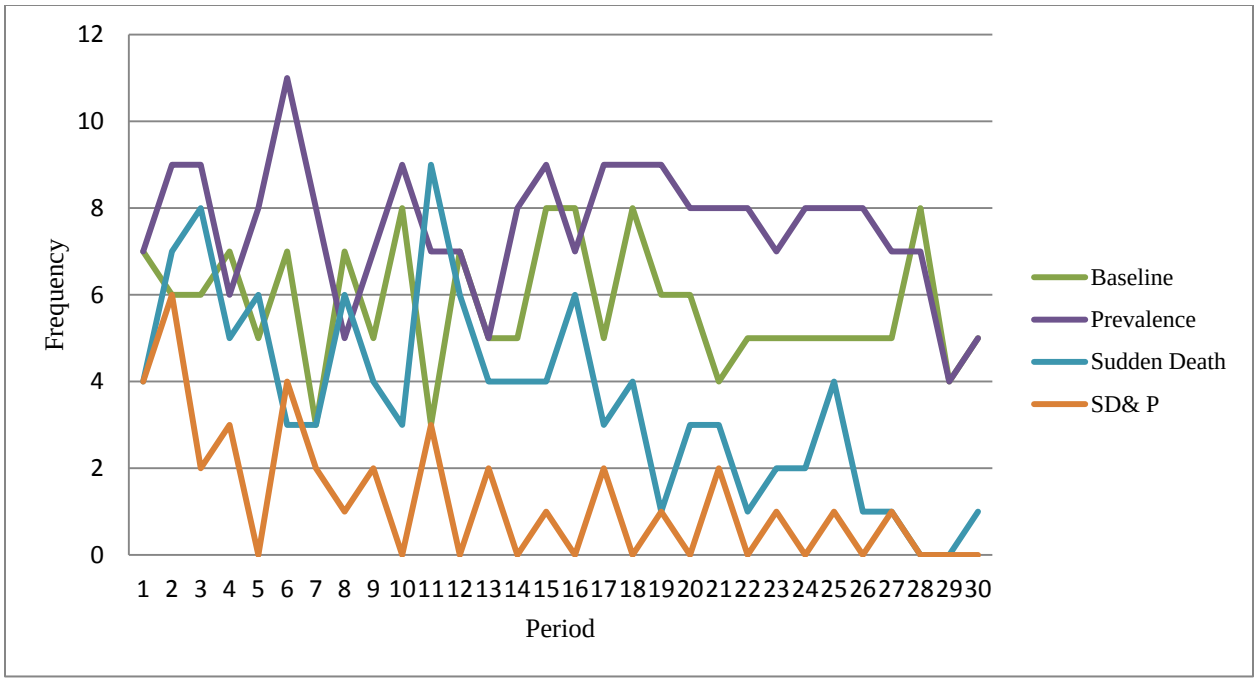

Figure 3 Frequency of FM Choice to Transfer over 30 Periods across Treatments

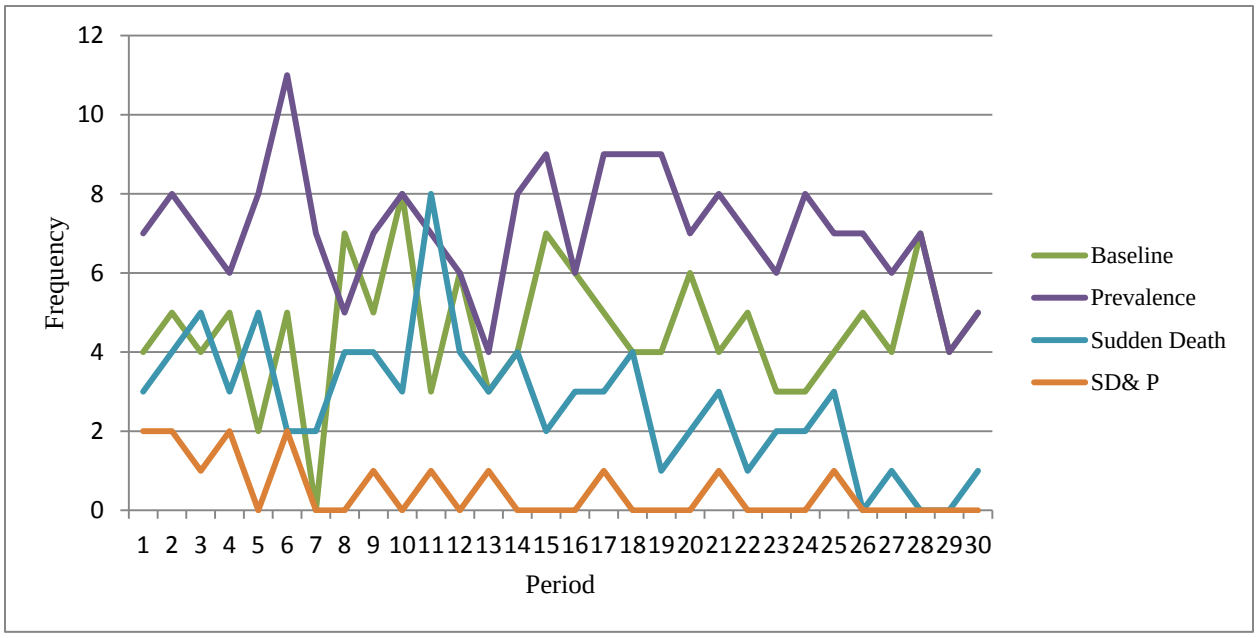

Figure 4 Frequency of SM Choice to Accept Transfer over 30 Periods across Treatments

Table 3 below shows the non-parametric test of average amount transferred by each subject over 30 periods across treatments. The test shows a significant difference in the amount

of transfer between the Prevalence treatment and SD and Prevalence treatment, as well as significant difference between Sudden Death and SD and Prevalence treatment. The test results support our hypotheses that in an environment with prevalent bribery behavior, the effect can be reduced by legal enforcement. The test results from SD and SD & P show that even in environments with legal enforcement, prevalent behavior can have an effect on bribery behavior.

Test	Mann-Whitney Test (Rank Sum Test)	K-S Test
Null Hypotheses Test Statistics	Baseline=Prevalence z = -1.528 Prob > |z| = 0.1265 Prob (Baseline>Treatment)=0.333	Distribution Equal D= 0.3286 Exact p-value=0.297
Null Hypotheses Test Statistics	Baseline=Sudden Death z = 1.102 Prob > |z| = 0.2705 Prob (Baseline>Treatment)=0.618	Distribution Equal D= 0.333 Exact p-value=0.184
Null Hypotheses Test Statistics	Sudden Death=Sudden Death and Prevalence z = 2.409 Prob > |z| = 0.0160 Prob (Baseline>Treatment)=0.753	Distribution Equal D= 0.5333*** Exact p-value=0.015
Null Hypotheses Test Statistics	Prevalence=Sudden Death and Prevalence z = 4.187 Prob > |z| = 0.00 Prob (Baseline>Treatment)=0.955	Distribution Equal D= 0.7857*** Exact p-value=0.000

Table 3 Non Parametric Test for First Mover Amount of Transfer

Analyzing the decisions of both FM and SM across treatments for the first period shows that there is no difference in first period behavior between Baseline and Prevalence, but the trend shows increase in frequency of FM transfer over 30 periods, so we can say that once the prevalence information is provided in period 2, it has an effect on choice. In both SD and SD & P treatments, there was a significant decrease in transfer choice by FM and accept transfer by SM compared to Baseline in first period. Average transfer in first period was higher in Prevalence and lower in SD and SD & P compared to Baseline. The figures for FM transfer choice and the average transfer in first period is provided below. The SM choice to accept and SM choice of X and Y are provided in appendix.

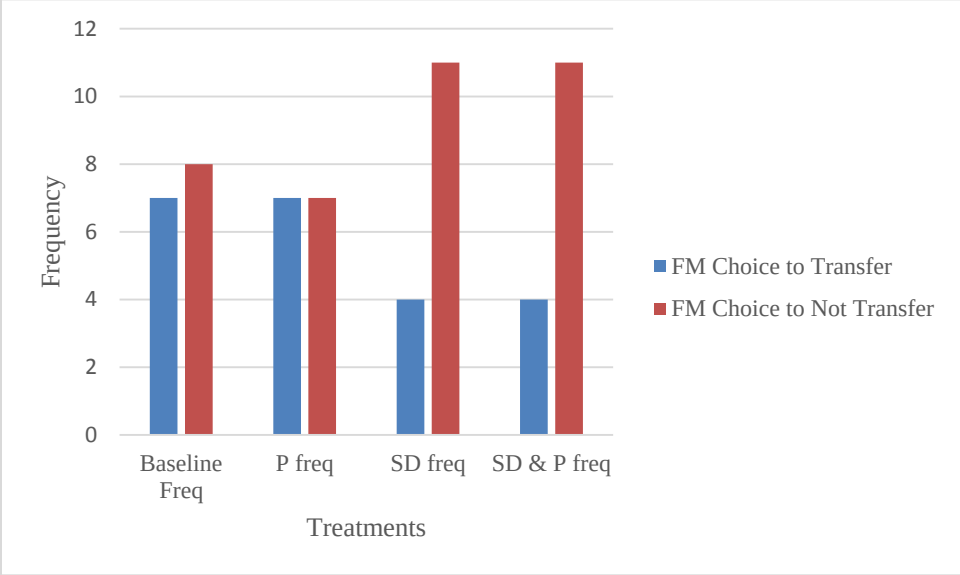

Figure 5 First Period FM Choice to Transfer or Not Transfer across Treatments

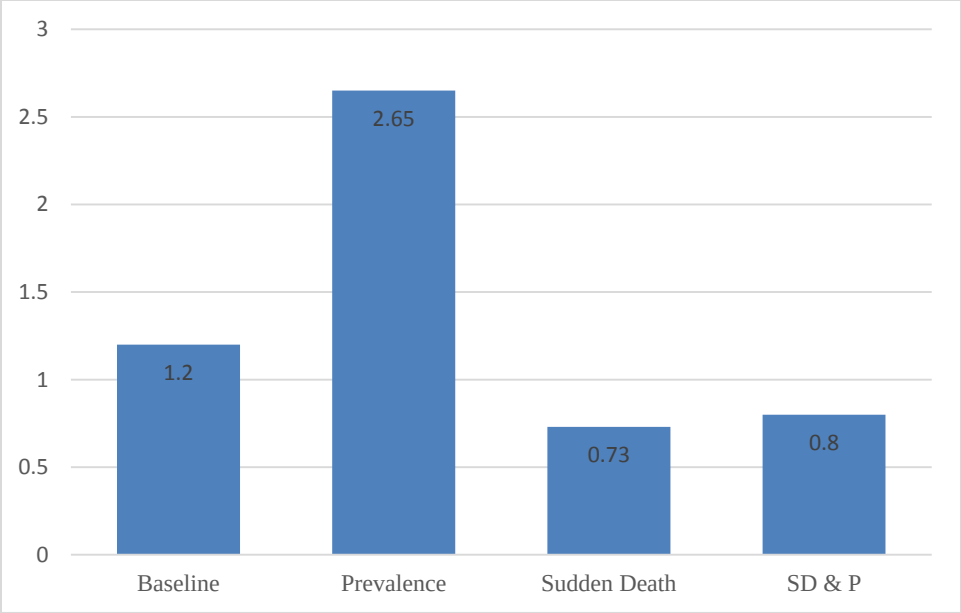

Figure 6 First Period Average Transfer by FM across Treatments

The frequency of FM choice to transfer or not to transfer in the two Sudden Death treatment is provided below and the table shows that with a higher probability of getting caught and losing everything, the frequency of FM choice to transfer declined.

	Sudden Death 3%	**Sudden Death 10%**
Transfer	59	49
Not Transfer	137	164

Table 4 Frequency of FM choice to Transfer or Not Transfer in Sudden Death

A probit model is then used to analyze the frequency of transfer choices by First Mover and also SM's frequency of Y choices and the marginal effects are provided in Table 5 and 6 respectively. A multinomial probit model was further used to break down the frequency of Y choices by SM taking into account first SM's choice to accept or reject the transfer. The results are provided in Table 7. Table 5 shows statistically significant effects for each of the treatments except sudden death with 10 percent probability. There is a decrease in FM choice to transfer

with 3 percent chance of getting caught and the results show there is no further decline in choice by increasing the probability to 10%. Risk attitude does not seem to have a significant effect on FM choice to transfer. Prevalence treatment shows a positive increase in frequency of FM transfer which supports our hypothesis that in an environment with prevalent bribery, we would expect bribery to be higher. The sudden death treatments all show a decline in the frequency of transfer which also supports our hypothesis that legal enforcement will reduce level of corruption. Looking at the SD and P 10 percent probability marginal effect shows that with higher chances of getting caught, the level of corruption declines further.

No of Observation	3120
Dependent Variable: FM Choice to Transfer	
Prevalence Treatment	0.180***
	(0.0246)
Sudden Death with 3% Prob	-0.0511**
	(0.0228)
Sudden Death with 10% Prob	-0.0303
	(0.0268)
Sudden Death and Prevalence 10% Prob	-0.266***
	(0.0219)
Sudden Death and Prevalence 3% Prob	-0.181***
	(0.0245)
Gender (1=Female)	-0.0283
	(0.0193)
Age	0.00298
	(0.00386)
GPA	0.0183
	(0.0199)
Risk Attitude (1=Risk Averse)	-0.0104
	(0.0231)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 Probit Regression on Frequency of First Mover Transfer Choice

No. of Observations	3108
Dependent Variable: SM Choice of Y	
Prevalence	0.107***
	(-0.0315)
Sudden Death 3%	0.0441
	(-0.0304)
Sudden Death 10%	-0.0689**
	(-0.028)
Sudden Death and Prevalence 3%	-0.116***
	(-0.029)
Sudden Death and Prevalence 10%	-0.0516
	(-0.0383)
FM Transfer Amount	0.0657***
	(-0.00447)
Risk Attitude (1=Risk Averse)	-0.103***
	(-0.0374)
Gender (1=Female)	-0.0388*
	(-0.0231)
Age	0.0202***
	(-0.00734)
GPA	0.016
	(-0.0253)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 Probit Regression on Second Mover Choice of X and Y

Table 6 shows the results for frequency of Y choices by Second Mover, and while Sudden Death 3% and Sudden Death with Prevalence 10% has no significant effect, SM's choice of Y in the other treatments are significant. The transfer amount by FM also has a significant effect on SM choice of Y. Female subjects chose fewer Y options compared to their male counterparts. Finally table 7 shows the results from the multinomial probit model.

No. of Observations	3108	3108	3108	3108
	SM Choice=Accept & XY Choice=X	SM Choice=Accept & XY Choice=Y	SM Choice=Reject & XY Choice=X	SM Choice=Reject & XY Choice=Y
Prevalence	-0.0793	0.231		0.563***
	(0.192)	(0.233)		(0.205)
Sudden Death 3%	-0.535**	-1.027***		0.523***
	(0.215)	(0.303)		(0.189)
Sudden Death 10%	-0.876***	-1.103***		-0.382
	(0.260)	(0.347)		(0.258)
SD & P 3%	-1.135***	-2.471***		-0.629*
	(0.316)	(0.643)	Base Case	(0.333)
SD & P 10%	-11.44	-0.664		-0.503*
	-1.247	(0.704)		(0.289)
Risk Attitude (1=Risk Averse)	-0.607***	-1.359***		-0.0927
	(0.217)	(0.254)		(0.263)
GPA	0.322*	0.306		0.109
	(0.184)	(0.244)		(0.174)
Age	0.148***	0.161**		0.171***
	(0.0539)	(0.0656)		(0.0536)
Gender (1=Female)	-0.110	-0.473**		-0.0910
	(0.167)	(0.211)		(0.160)
FM Transfer Amount	0.805***	1.074***		0.119
	(0.0471)	(0.0536)		(0.0891)
Constant	-5.213***	-5.597***		-5.693***
	(1.376)	(1.738)		(1.428)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 Multinomial Probit of SM Choice of X and Y dependent on SM choice of Accept/Reject Transfer

Conclusion

This paper implements a bribery game to test whether prevalence and risk of getting caught has an effect on the level of corruption. The findings of this paper have important implications since this can help design and implement different policies that will be effective in fighting corruption. The aim of this paper is to shed some further light into the issue of corruption and find some of the micro level factors that affect it. It is hypothesized that in an environment where corruption is prevalent, we would expect higher levels of corruption; if there is a risk of getting caught we would expect lower corruption; and finally even in an environment where corruption

is prevalent, we would expect lower levels of corruption if there was a risk of getting caught and suffering a large penalty. The results support the proposed hypotheses and we have found that prevalence of bribery in a system does lead more first movers to decide to transfer bribes and more second movers to choose socially inefficient options. Legal enforcement in the form of punishment to lose everything decreases these levels of corruption in the system overall. Further research can be conducted on whether there is a difference in the level of corruption among gender, effect of whistle blowing, uncertainty about the corruptibility of the public official and so forth.

Chapter II: Can Cooperative Behavior Improve Efficiency in Public Good Provision?

Introduction

The literature on public good provision is extensive, and it looks at different factors that affect public good provision. In experimental literature, we occasionally see full contribution towards public good and occasionally a trend towards complete free riding. In repeated games, we do see the equilibrium converging towards free riding rather than cooperation. Cooperation in general and the level found in these experimental public goods games are said to be present due to many factors, including but not limited to other regarding preference, gender difference in groups, the return from public goods, the size of the group and so forth. This paper will try to observe whether direct information about a person's cooperative behavior in a trust game affects public good contribution. If individuals in a group can trust each other and know that their group members have displayed cooperation previously, then they might not free ride and contribute more to the public good. This paper will try to see if the information about a person's cooperation trumps incentives to free ride in a public good contribution scenario.

There are several articles (Cremer et al. 2001; Gachter et al. 2004) that look at how trust is correlated to voluntary contribution, and the general finding is that trust and voluntary contribution are positively correlated, and more trusting individuals contribute more. However, these papers do not look at how information on the actual cooperative behavior of the other group members affects voluntary contribution; this paper will contribute the above to the literature.

This paper furthers the research in cooperation and voluntary contribution by going one step further to study a direct relationship between cooperation in trust games and the same subjects' contributions in a public goods game. So far, the literature has looked at voluntary contribution

to a public good and correlated that to post experiment questionnaire on trust to find a positive correlation between the two. If by providing cooperative behavior information we can correct the free rider problem, this can give us further insight into designing policies that aim at correcting free riding in public good situation. This paper use undergraduate subjects to see if there is any difference between contribution and cooperation when information is provided on the cooperative nature of the group members.

Past Literature

There is significant amount of literature on trust and investment games, and what makes the subjects more altruistic, how to measure trust and reciprocity, what factors affect trust between the two players and so forth. In the public good domain there is also significant research on factors affecting contribution to public goods including factors like gender, group size, punishment, competition, religion, and so forth. Some of the more relevant literature that looks at both investment game and public goods game or tries to find a relationship between trust and public good contribution is discussed below. A recent paper by Augenblick & Cunha (2011) looks at contribution behavior to a political campaign in a competitive versus cooperative setting. The results show that overall contribution was higher in the competitive setting where the group is trying to beat the other group compared to a cooperative setting where you are given information on giving by your group members. The cooperative giving amount was significantly higher than the baseline as well. This paper signifies that there is a link between information provided on the cooperative nature of the group and giving amounts. Other literature by Thoni et al. (2009) and Leonard et al. (2010) looks at self-reported trust and self-reported contribution behaviors respectively and find a positive correlation between trust and cooperation. While the literature correlates self-reported trust to public good contribution, there are very few that

compares actual cooperative behavior shown in an investment game and how that affects contribution to a public good. A study by Halimatussadiah et al. (2014) also utilizes a trust game followed by a threshold public goods game and finds a positive relationship between trust and public good contributions. They also further their study to include a treatment where some subjects in the public good game get partial information about some of their group members. This is done by including a pair of players who played the trust game together and having two other unknown players in the same group in the public good game. So then two out of the four people have some information on transfer decisions made in the trust game. They found no significant difference in contribution by having partial information on group members. Another study by Kocher et al. (2011) comes closest to the above where they elicit trust information from a trust game and cooperative behavior information from a public goods game and correlate the two. The subjects in the experiment first play a public goods game and then a trust game, and the results show that more cooperative people are more trusting. However, this paper deviates in two ways: firstly, the cooperative behavior information is gathered from the investment game, and secondly this transfer decision information is communicated to the group members in the public goods game. This provides a direct link between cooperative behavior of the specific group members and how that affects contribution to the public good. While some studies do one or the other or implement information partially, no paper does both to study the effect of cooperation and that information on public good contribution.

Investment Game

"Trust" is a belief that one player has about the behavior of another, and a trusting behavior is defined here as creating a possibility for both players to have mutual benefit from an action, if both cooperate, and a loss to the person if the other defects. "Reciprocity" is returning a generous

action by implementing an action that is generous to the other person. The investment game used in this paper is the game introduced by Berg et al. (1995) which is widely used in the experimental literature. The game can be summarized in the following way. A group of subjects is divided into two groups, Group A and Group B. Each person is given an endowment of $10 and the subjects from Group B are instructed to keep their $10. Subjects from Group A are told that if they wish they could transfer any integer amount between $1 and $10 to the anonymously matched person in Group B, and that amount will be tripled and given to the subject in Group B. Then that person in Group B will have the opportunity to return some, all or none of the tripled amount back to subject in Group A. Assuming self-regarding or economic man preferences, game theory predicts that Group B subjects will keep all the tripled amount of money received from Group A, and knowing that no money will be returned Group A subjects will send no money to Group B. If any positive transfer is observed from Group A subject to Group B subject, this will be a cooperative behavior and will be due to trust, other regarding preference, or a combination of the two. If Group B subject transfers back some of the tripled money this will be a cooperative behavior that can be attributed to reciprocity, other regarding preference, or a combination of the two. These positive transfers are due to cooperation, and this information about the subjects can influence how the group members in a public good game perceive the others and can influence the amount of contribution.

This transfer information will be used in the public goods game to see if cooperation has an effect on voluntary contribution. The same subjects that play the investment game also play the public goods game.

Public Goods Game

The game used in this paper is the most commonly used form in the literature with N players making decisions simultaneously (Isaac et al. 1994) where each player begins with a private endowment E that he can invest in either a private account or a group account. Any amount invested in the group account creates a benefit for both the player and also the group members. The amount that an individual invests in the group account yields a lower return to him than the yield from the private account, but it a yields greater amount for the group overall.

In this paper, each agent will be endowed with $10. Each $1 contributed to the public good fund yields $0.75 to each agent, so the value of investing in the group fund for the whole group where N=4 is $3. The payoff to agent *i* is:

$$\pi_i = 10\text{-}x_i + 3\sum^{4}_{j=1}(x_j/4)$$

To maximize group earnings, all agents will allocate their entire endowment to the group fund; however an individual's self-interest is to allocate nothing to the group fund.

Design and Procedure

Each session were comprised of a maximum of 40 undergraduate subjects at Georgia State University chosen from the database of subjects who signed up to participate in experiments. The subjects are filtered on whether they have participated in trust and/or public good experiments in the near past (one year). Each subject participated in the investment game and then in the public goods game. The subjects were randomly placed in one of two groups (Group A or Group B) in the beginning and each subject from Group A was paired randomly with a subject from Group B to play the investment game. The subjects played the investment game first, so that cooperation information from the investment game could then be provided in the public goods game. The experiment involved four treatments in a between-subjects design, and a double blind payoff

protocol. Though it is relatively common practice to use single blind payoff protocol in fairness games, this paper implemented a double blind protocol so that any experimenter effect if any could be disentangled from the observed data. The subjects were provided written instructions and given a verbal summary of the experiment. The experiment was computerized, and the subjects received instructions on each game before they played the game.

An important aspect of this experiment relies on providing information on the transfer decisions of the subjects, so the experimenter needed to be able to link the subject to their transfer decision. The unique key numbers that the subjects used to collect their earnings at the end of the experiment were used to identify the subjects with their transfer decision choices and the information was provided in the public goods game. This ensures anonymity between the subjects and the experimenter, but also helped provide the information that was needed. The investment game in all treatments were a one-shot game. Public goods games were repeated game played for 10 periods. In the baseline treatment a one-shot investment game will be followed by a repeated public goods game with a length of 10 periods. This baseline treatment had no information on cooperation in the public goods game. In treatment Public Good-Repeated (PG-10) there was a one-shot investment game and a repeated public goods game. In PG-10, information was provided on the cooperative behavior of the subjects from the investment game. This was done by providing actual transfer amounts that the subjects made in the investment game. This provided information on how cooperative a group member is to the other group members. If there is an effect of cooperation information on the amount of contribution in the public goods game, then PG-10 will let us see if that effect dissipates over time, where the subjects may consider the cooperative behavior in the beginning but still may converge towards free-loading in a repeated game. If findings confirm that contributions do not converge towards

free riding over time, this result will be in contrast to the most common findings of free riding convergence in public goods game.

For the public goods game, the subjects were randomly matched to form groups of 4 to play the repeated VCM game. Subjects participated in only one of the two treatments. The payment protocol was Pay-One-Randomly (POR) where one of the two task was selected by a coin flip. The subjects are instructed at the beginning that they will take part in two unrelated tasks, and one will be selected randomly for payout at the end. They are told their potential payout from each task at the end of the respective tasks. The subjects receive a $5 participation payment for participating in the experiment and filling out the questionnaire in addition to any amount earned in the task. For the repeated public goods treatments, if the coin flip selected the public goods game for payout, then a numbered ball was drawn from a bingo cage with 10 numbered balls, and the number represented which period within the public goods game was paid out.

Results

A total of 136 undergraduate students from Georgia State University participated in the experiment, 68 in the Baseline treatment and 68 in the Information treatment. Four sessions (two per treatment) were conducted, and the average payouts varied depending on which task got chosen for payout. The investment game got chosen for payout twice (once in each treatment) and the VCM game was chosen twice. The average payouts varied from $18 to $28.44 (including the $5 show-up payment).

Table 8 provides a summary of subject decisions in both the investment game and the VCM game.

N=34 Pairs in Baseline				
	Mean	Std. Dev	Minimum	Maximum
Group A Transfer	3.56	2.83	0	10
Group B Return	5.52	4.82	0	18
N=34 Pair in Treatment				
Group A Transfer	4.97	3.68	0	10
Group B Return	8.96	6.02	0	20
N=17 (4 Person Group) in VCM				
Average Contribution in Baseline (Over 10 Period VCM)	6.1	3.46	0	10
Average Contribution in Treatment (Over 10 Period VCM)	6.78	3.5	0	10

Table 8 Summary of Subject Decisions (Investment & VCM Game)

At the beginning of the Information treatment, subjects were informed that the decisions in the first task may be revealed to others in the second task. The Mann-Whitney test results below shows that there is a significant difference in Group B return when the subjects knew that this cooperation information will be revealed. It seemed to have no significant effect on how much Group A decided to transfer. The results are provided below in Table 9 and 10.

Test	Mann-Whitney Test (Rank Sum Test)	K-S Test
Null Hypotheses	Baseline=Treatment	Distribution Equal
Test Statistics	z = -1.567	D= 0.2353
	Prob > |z| = 0.1171	Exact p-value=0.278
	Prob (Baseline>Treatment)=0.391	

Table 9 Non Parametric Test for Group A (Type 1) Trust Game

Test	Mann-Whitney Test (Rank Sum Test)	K-S Test
Null Hypotheses	Baseline=Treatment	Distribution Equal
Test Statistics	z = -2.244	D= 0.2586
	Prob > |z| = 0.0249	Exact p-value=0.251
	Prob (Baseline>Treatment)=0.328	

Table 10 Non Parametric Test for Group B (Type 2) Trust Game

Tobit analysis was then undertaken to analyze if there is any treatment effect present. The tables below provide the results of the analysis. The analysis was done by type of player; Group A or Group B. Table 11 provides results for Group A players for all periods. Model 1 shows a simple Tobit with only the treatment dummy variable (Treatment=1) and the transfer decisions made by Group A players in the investment game as the independent variables. The dependent variable is amount of contribution in the VCM game. Model 2 to 4 includes different demographic, lagged contribution and trust indicator question to the model. The results show that there is a significant treatment effect across the different models, and also there is a significant relationship between transfer amounts in the investment game and contribution to the VCM. It also comes as no surprise that last period contribution decisions in the VCM game has significant effect on current period contributions. Gender is significant across models as well, where the variable takes on the value of 1 for Females. The general results summarize that females contributed less than their male counterparts. Freshman subjects tend to contribute more compared to upper classmen. Trust indicator questions did not have a significant effect on the contribution of Group A players. The three self-reported trust questions were relatively highly correlated with correlation ranging from 0.56 to 0.66.

No. of Observations	680	670	670	603
	Dependent Variable: Contribution in VCM			
	Model 1	Model 2	Model 3	Model 4
Treatment Dummy	0.935*	1.383**	1.324**	0.823**
	(0.532)	(0.574)	(0.592)	(0.419)
FM Transfer in Trust Game	0.487***	0.469***	0.489***	0.123*
	(0.0826)	(0.0907)	(0.0920)	(0.0663)
Gender (Female=1)		-1.889***	-1.857***	-0.977**
		(0.592)	(0.603)	(0.428)
Class Standing(Freshman=1)		2.145**	2.228**	0.956
		(0.920)	(0.928)	(0.676)
African-American		-0.293	-0.270	0.00182
		(0.923)	(0.921)	(0.682)
Age		0.105	0.0937	0.0145
		(0.116)	(0.117)	(0.0835)
Lagged Contribution				0.938***
				(0.0578)
Most People Can be Trusted			-0.139	
			(0.367)	
Most People will Take Advantage			0.0748	
			(0.373)	
Most People are Helpful			0.339	
			(0.365)	
Constant	5.613***	3.111	1.367	1.853
	(0.463)	(3.970)	(4.289)	(2.862)
Sigma Distribution of Std. Dev.	6.289***	6.108***	6.101***	4.127***
	(0.280)	(0.273)	(0.273)	(0.171)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11 Tobit Model Results for Group A (Type 1) Player (All Period)

Table 12 shows the results from the tobit model where only the first period of the VCM game is considered. The results show no significant treatment effect, but show a strong effect between transfer choice in the investment game and contribution to the VCM game. The results show that trust indictor questions have a significant effect.

No. of Observations	67	67
	Dependent Variable: Contribution in VCM	
	Model 1	Model 2
Treatment Dummy	0.389	0.780
	(1.320)	(1.293)
FM Transfer in Trust Game	0.613***	0.689***
	(0.220)	(0.215)
Gender	-1.918	-2.254*
	(1.367)	(1.328)
Class Standing	0.860	1.302
	(2.128)	(2.049)
African-American	0.0186	0.362
	(2.106)	(2.018)
Age	0.164	0.0994
	(0.275)	(0.263)
Most People Can be Trusted		0.287
		(0.786)
Most People will Take Advantage		-1.214
		(0.802)
Most People are Helpful		1.727**
		(0.815)
Constant	-5.929	-9.429
	(9.372)	(9.656)
Sigma Distribution of Std. Dev.	4.610***	4.358***
	(0.579)	(0.546)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12 Tobit Model 1 Period VCM For Group A (Type 1) Player

Table 13 provides the results for the tobit model with potential treatment effect on the amount of contribution in the VCM game for periods 2 to 10. The results below show a significant treatment effect for the model with demographics as well as the model with trust indicators. However, the treatment effect is not significant when lagged contribution is taken into account.

No. of Observations	603	603	603
	Model 1	Model 2	Model 3
Treatment Dummy	1.556**	1.429**	0.448
	(0.623)	(0.643)	(0.535)
FM Transfer in Trust Game	0.452***	0.466***	0.158*
	(0.0979)	(0.0992)	(0.0841)
Gender	-1.900***	-1.812***	-0.883
	(0.642)	(0.653)	(0.546)
Class Standing	2.348**	2.378**	1.095
	(0.998)	(1.008)	(0.858)
African-American	-0.322	-0.318	-0.311
	(1.002)	(0.999)	(0.867)
Age	0.0947	0.0890	-0.0536
	(0.125)	(0.126)	(0.105)
Lagged Contribution			1.104***
			(0.0772)
Most People Can be Trusted		-0.219	
		(0.399)	
Most People will Take Advantage		0.278	
		(0.407)	
Most People are Helpful		0.135	
		(0.396)	
Constant	4.343	2.966	2.194
	(4.289)	(4.635)	(3.618)
Sigma Distribution of Std. Dev.	6.244***	6.240***	4.878***
	(0.298)	(0.298)	(0.242)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13 Tobit Model Period 2 to 10 VCM For Group A (Type 1) Player

The results for the Group B players are provided below. The results show no significant treatment effect on the contribution decisions of the Group B members when information is provided on transfer decisions of their other group members. The Group B players' contribution decisions were significantly affected by return choices made in investment game, gender, class

standing and trust indicators. Group B member choices show a significant correlation between self-reported trust behavior and contribution to public goods game.

No. of Observations	570	570	670	513	513
	Dependent Variable: Contribution in VCM				
	Model 1	Model 2	Model 3	Model 4	Model 5
Treatment Dummy	-1.009**	-0.64	-0.401	-0.228	-0.141
	(0.460)	(0.450)	(0.413)	(0.368)	(0.361)
SM Return in Trust Game	0.295***	0.311***	0.332***	0.0987***	0.135***
	(0.0429)	(0.0419)	(0.0461)	(0.0354)	(0.0416)
Gender		-2.826***	-1.299***	-1.452***	-0.916**
		(0.516)	(0.496)	(0.436)	(0.442)
Class Standing		3.034***	2.271***	0.726	0.635
		(0.838)	(0.823)	(0.713)	(0.735)
African-American		0.787	0.0450	0.246	0.0267
		(0.561)	(0.531)	(0.461)	(0.463)
Age		0.523***	0.429***	0.244*	0.241*
		(0.150)	(0.157)	(0.135)	(0.145)
Lagged Contribution				0.991***	0.887***
				(0.0616)	(0.0634)
Most People Can be Trusted			-2.400***		-1.006***
			(0.294)		(0.266)
Most People will Take Advantage			0.903***		0.224
			(0.257)		(0.226)
Most People are Helpful			-0.553**		-0.208
			(0.273)		(0.239)
Constant	5.798***	-3.525	5.994	-4.595	-0.155
	(0.385)	(4.223)	(4.440)	(3.718)	(4.075)
Sigma Distribution of Std. Dev.	4.961***	4.668***	4.258***	3.549***	3.463***
	(0.212)	(0.199)	(0.180)	(0.156)	(0.152)
*** p<0.01, ** p<0.05, * p<0.1					

Table 14 Tobit Model Results for Type 2 Player (All Period)

No. of Observations	57	57
	Dependent Variable: Contribution in VCM	
	Model 1	Model 2
Treatment Dummy	-0.512	-0.471
	(1.121)	(0.995)
SM Return in Trust Game	0.373***	0.375***
	(0.109)	(0.116)
Gender	-4.210***	-2.570**
	(1.360)	(1.260)
Class Standing	4.055	4.115
	(2.494)	(2.676)
African-American	0.646	-0.279
	(1.413)	(1.285)
Age	0.918	0.976
	(0.589)	(0.711)
Most People Can be Trusted		-2.130***
		(0.725)
Most People will Take Advantage		1.278**
		(0.607)
Most People are Helpful		-0.869
		(0.654)
Constant	-17.11	-12.99
	(14.82)	(17.12)
Sigma Distribution of Std. Dev.	3.564***	3.108***
	(0.465)	(0.402)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15 Tobit Model 1 Period VCM For Type 2 Player

No. of Observations	513	513	456	456
	Dependent Variable: Contribution in VCM			
	Model 1	Model 2	Model3	Model 4
Treatment Dummy	-0.623	-0.363	-0.270	-0.182
	(0.481)	(0.442)	(0.398)	(0.390)
SM Return in Trust Game	0.305***	0.325***	0.0915**	0.124***
	(0.0447)	(0.0491)	(0.0381)	(0.0447)
Gender	-2.729***	-1.184**	-1.452***	-0.887*
	(0.551)	(0.530)	(0.469)	(0.477)
Class Standing	2.947***	2.121**	0.596	0.491
	(0.891)	(0.872)	(0.774)	(0.800)
African-American	0.853	0.108	0.240	-0.00322
	(0.599)	(0.568)	(0.499)	(0.501)
Age	0.494***	0.394**	0.272*	0.270*
	(0.158)	(0.163)	(0.148)	(0.160)
Lagged Contribution			1.010***	0.904***
			(0.0664)	(0.0682)
Most People Can be Trusted		-2.432***		-1.064***
		(0.314)		(0.287)
Most People will Take Advantage		0.835***		0.277
		(0.275)		(0.244)
Most People are Helpful		-0.496*		-0.186
		(0.292)		(0.258)
Constant	-2.288	7.564	-6.483	-2.052
	(4.468)	(4.672)	(4.076)	(4.483)
Sigma Distribution of Std. Dev.	4.734***	4.322***	3.617***	3.533***
	(0.213)	(0.193)	(0.169)	(0.165)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 16 Tobit Model Period Greater than 1 for Type 2 Player

An efficiency measure was also calculated by group for the VCM game, so that the efficiency gain if any from the treatment can be calculated. Efficiency measure was calculated by finding the average earnings per group member in the VCM game across the 10 periods divided

by the maximum potential earnings per member across 10 periods. The results show an average efficiency of 73.9% across 17 groups in the Baseline treatment, and an average efficiency of 78.5% across 17 groups in the Information treatment. This shows an efficiency gain of 4.5% which is weakly significant (p=0.078).

Conclusion

The aim of this paper was to see if there is any effect of providing cooperation information on contribution to public goods utilizing an investment game and a public goods game in an experimental laboratory setting. The results support the hypothesis that when group members know how cooperative others were in a social dilemma situation, this does affect contribution to a public good. This shows that when there is more clear information, this decreases likelihood of free riding and makes group members more willing to contribute to the public good. The results also show a strong relationship between transfer choices in the investment game and contribution in the public goods game. This further supports the literature that show that people who are more cooperative, that is have more other regarding preferences, contribute more to a public good.

Chapter III: Means and Ends in Charitable Giving for Environmental Protection: A Discussion

Introduction

One of the biggest portions of charitable giving in the U.S. comes from individuals or households, accounting for 73% of total giving in 2011 according to Giving USA, a report compiled annually by the American Association of Fundraising Counsel. Environment and Animals received 3% of the total pie or $7.81 billion. This is a significant amount that has and can be used in the continuing efforts to conserve the environment. Individuals make up the greatest portion of charitable giving, so it comes as no surprise that vast amount of research has been conducted in the field of charitable giving and public good contributions, and on the characteristics of individuals, that try to explain the level of giving and why they give. The literature includes but is not limited to factors such as gender, religion, age, education that affect charitable giving, and some of the reasons mentioned include altruism, reputation, psychological benefits and so forth (Bekkers & Wiepking 2007). While the literature on the characteristics of the individual is extensive, the literature on the characteristics of the public good itself is sparse. There is literature that looks at giving to different types of charities and tries to find why people give more to one type of charity than the other[8], but no paper tries to frame or make some attributes of the charity more salient than the other using the same charity to see if that has an effect on giving. One attempt of trying to see the effect of framing can be seen in Fritsche & Hafner (2012) where they use a questionnaire method to see whether individuals behave differently when the desire is to protect humans versus environment. This paper proposes a design for a field experiment along with a theoretical framework to see whether biocentric versus anthropocentric attribute focus of a public good (conserving the environment) has an effect on

[8] Bennett (2003) looked at giving to different types of charities and found that personal values and their correlation to the charities values mattered in choosing which charity to give to.

the amount of giving to the cause. A second question that can be addressed with the design is if there is any difference in giving when the mechanism used to reach the public good namely ecosystem conservation is market-based mechanism like performance based contracts, or in the traditional form like education on alternative livelihood. Biocentric is defined here as the attribute of the charity that focuses on the benefits to the ecosystem, nature and environment in general; whereas, anthropocentric is defined as the attribute that focuses on the human benefits out of the charitable giving. The public good that individuals are contributing to in this paper is the same; it is conserving the ecosystem of a specific area or a particular species. The benefits of this public good include benefits to both humans and to the environment and marine life in the area. One of the main questions that we are trying to answer is if there is a behavior difference in giving if we highlight one benefit or attribute or the other. Fritsche & Hafner (2012) used a questionnaire to understand individuals' behavior towards existential threat, and framed the threat in terms of threat to humans, and in another frame a threat to the environment. They concluded in their paper that there is a greater desire to protect humans than the environment, but they also found that if protecting the environment is framed such that it is related to saving humans, then the inclination to protect environment goes up. We can draw from their findings and hypothesize that anthropocentric motivation will result in more giving compared to biocentric. If findings support the hypothesis that providing information on one benefit generates more giving compared to the other (anthropocentric vs. biocentric), then charitable giving efforts can be structured accordingly to achieve higher giving rates and amounts.

While economics literature on characteristics of a public good and charitable giving is sparse, there is evidence in several other disciplines' literature showing attributes related to a public good matter. Attributes in the literature can be generally defined as any characteristics of a good

which may include the benefactors of the good, the mechanism of utilizing the donations and so forth. Bulte et al. (2005) look at whether people's willingness to pay (WTP) values differ if the cause of an environmental problem is man-made or nature caused. If individuals have only utility and preference over the outcome, which is environmental degradation, then their WTP value should not be affected by the cause of the problem. However, they find that people's WTP was significantly different when the cause was man-made versus nature. This shows that people have preference not only over the outcome, but also other characteristics of the public good. Psychology literature describes these different characteristics as a type of attribute framing. They state that attribute framing affects the evaluation of an object or event characteristics. Attribute framing will suggest that decision makers behave differently when an attribute is framed in a positive versus negative manner, and decision makers may prefer one attribute to another. So if a good has many attributes, then which attribute gets focused on and or whether the attribute is framed in a positive or negative light will affect decisions. Levin & Gaeth (1998) is a well-known paper on evaluation of beef that focused on the attribute that defines the fat content of the product, and they found significant difference in preference for the beef when it is framed as having 25% fat compared to when framed as having 75% lean portion. The above paper concentrates on one attribute and frames it in two ways, but if a good has multi-attributes and individuals have preferences over them all, then the natural progression is to see how focusing on different attributes affects decisions. There is some literature in marketing and business that looks at multi-attribute private goods and consumer choice (Anderson 1981, Meyer 1981, Huber & McCann 1982, Russo et al. 1996). The public good in this paper can be seen as a product that has multi attributes, namely the non-excludable benefit flows that it creates to both humans and the environment. We can then derive a framework for a multi-attribute warm-glow public good

model explained later in the paper which will allow us to look at how attributes affect giving. A warm-glow model is used to create a framework through which attributes affect contributions, because there is support in the psychology literature that shows that characteristics of a charity affect warm-glow. This paper looks at how attributes affect giving through the warm-glow channel, but it does not in any means imply that the effect could not be directly through the overall public good, or other channels. We are merely focused on one channel to build a framework that could show whether attributes affect giving. This paper is trying to parameterize warm-glow to show what factors can affect warm-glow.

The above literature provides support for our hypothesis that attributes of a public good do have an effect on an individual's preference for the good. Lancaster (1966) formulated a consumer theory that incorporates individual's preference over attributes. The theory states that individuals gain utility over the attributes of a good, not just a good itself, so when people are making a choice between two goods, they take the attributes into account. A blue car and a red car will not give the person same level of utility if the person likes blue over red. He developed this theory for private goods, but the reasoning can be extended to the public good domain as well. The paper by Bennett (2003) shows that individuals have preferences over charities which are related to their own personal values and inclinations, and also found that preferences also depend on the values of the charities itself. This clearly shows that the characteristics or attributes of the charity matter. So far the literature mentioned above supports a need to have a public goods model which incorporates attributes into utility maximization, but it is still a matter of question on how attributes affect utility. Bennet (2003) used a questionnaire interview method to elicit preference over three large UK charities, namely MacMillan Cancer Relief Organization, the Royal Society for the Prevention of Cruelty to Animals (RSPCA), and Amnesty

International. The size of these charities ensure that a small donation from one individual will not have a significant effect on the overall outcome. Or if we take the case of environmental quality for example which is related to the scope of this paper, we can see that one person's reduction of carbon footprint which can be viewed as their own donation to the public good does not affect the overall public good itself. Knowing this, an individual should not make any effort to reduce their carbon footprints, or in other words contribute to the public good. However, we do see individuals reducing their carbon footprint, and donating to the above mentioned causes, which we can justify using Andreoni's (1990) warm-glow model. Even in a situation like a large charity where the return from donating a dollar is very small, warm-glow model explains why people donate. Andreoni (1990) hypothesizes that the act of giving creates a warm-glow, which is separate from the utility gained from how much you give. So when you give to large charities, you give due to warm-glow. So in Bennett (2003) paper we can see that people give for warm glow. In addition, we see that people have preference over the charities, so we can say that the warm-glow giving is affected by the characteristics of the charity. Thus we can try to formulate a framework that incorporates public good attributes into the warm-glow portion of the utility, and say that people's preferences over attributes affects their warm-glow, and thus people will give more and have higher levels of warm-glow when a public good has attributes that they like.

The second question of this paper looks at whether there is any difference in contribution if the public good is provided as a market-based mechanism like performance based contracts or in the traditional form like education on alternative livelihood. Economists have favored market based incentives for environmental protection since they are more efficient and cost effective. However, there is debate on whether people should be paid to do the right thing, and they would argue that providing education on alternative livelihood is a better mechanism since the

fishermen should not overharvest for their own interest for future returns, and they should not be paid to reduce fishing now (Niesten & Rice 2004, Pagiola et al 2002, Simpson & Sedjo 1996). A paper by Bienabe and Hearne (2006) looks at people's willingness to pay for a Payment for Environmental Services (PES) when the money will go to conserving nature versus scenic beauty in Costa Rica. They found that overall willingness to pay was higher for nature conservation compared to scenic beauty, implying that people put a value on nature itself. Bienabe & Hearne (2006) looked at PES on different public good, but this paper will try to compare individual's contribution between PES and traditional mechanism for the same public good, conserving nature. The different payment mechanisms can also be seen as attributes or characteristics of the public good, which means that this too will influence warm-glow of giving to the public good. The payment mechanism also is introduced as a production function in the theoretical framework below, where it is the method that translated overall giving to the public good. The theoretical framework below provides a structure to build the design of experiment on.

Theoretical Framework

The standard Andreoni (1990) warm-glow model will state that an individual gains utility from the consumption of some private good X, and a public good G, and also from his own contribution, which is warm glow. The individual *i*'s wealth y_i which he allocates between the private good X and his contribution to the public good, g_i. So, his utility can be written as:

$$U_i = U_i(x_i, G, g_i) \qquad i = 1,\dots,n$$

There are n individuals, so $G = F(\sum_{i=1}^{n} g_i)$

But, in this paper, we are hypothesizing that attributes of a public good have an effect on the amount of donation. So we can extend the above utility function to the following:

$$U_i = U_i(x_i, G, g_i;\ \theta) \qquad i = 1,\dots,n\ ;\ \theta \in S$$

So now in this form, we can see that the attributes θ which are subsets of some set of attributes S is part of the public good and it is also an element of donation. So public goods, and donations are not independent of attributes any longer. Different sets of θ's will provide different levels of utility. The attributes are provided to the subjects.

The production function for the public good is as before. The total donations are used to provide the overall public good G using some production technology. This technology is defined loosely where it can be the mechanism that is used to create the public good. So it could be that if the final public good is conserving marine life, we could take the total contribution and use a market based mechanism to achieve the good. Thus the mechanism will be the production technology here.

We can set up the individual's optimization problem as follows:

$\max_{x_i, g_i} U_i\ (x_i\ , G, g_i;\ \theta)$

$s.t. \quad x_i\ +\ g_i = y_i$

$G = F(\sum_{i=1}^{n} g_i)$ and $G_{-i} = F(\sum_{j \neq i}^{n} g_j)$

so, $g_i = G - G_{-i}$

replacing the following in the utility function to maximize over g_i

$x_i\ =\ y_i - g_i$

$G = G_{-i} + g_i$

Then, we can plug in the constraints into the objective function and solve the simpler problem

$$\max_{g_i} U_i\ (y_i - g_i, G_{-i} + g_i, g_i; \theta)$$

The first-order condition (FOC) using Chain Rule is:

$$-\frac{\partial U_i}{\partial x_i} \cdot \frac{\partial x_i}{\partial g_i} + \frac{\partial U_i}{\partial G} \cdot \frac{\partial G}{\partial g_i} + \frac{\partial U_i}{\partial g_i} = 0$$

Assuming that the utility function is twice continuously differentiable, and that the first order condition is satisfied, there exists an explicit function that represents the value of g_i that maximizes U_i. Thus, we can say that individual donation is a function of the attributes, and we can say that individual donations g_i can be written as follows:

$$g_i = f(y_i, G_{-i}; \theta)$$

The model here is a generalized version where we can change the attributes that we are interested in, and see if there is a difference in the contribution level depending on the attributes. So, for our specific questions, we could have the attributes as anthropocentric vs. biocentric, or have them as market-based vs. traditional mechanism. The mechanisms can also affect giving through the production function, where how the money is transformed to create the final public good matters to donors. If different attributes affect warm-glow differently, we will expect to see different amounts contributed when different attributes are focused on.

Design

This paper will use field experiments to answer the two questions above: whether biocentric vs. anthropocentric attributes matter, and which mechanism is preferred by people: PES vs. Traditional. It will be a 2 x 2 design, and in partnership with a potential environmental group, such as International Community Foundation (ICF), an online petition and donation experiment can be set up where we utilize one of the existing projects and highlight the different attributes. Each individual will participate in only one treatment. The treatments will be randomized in time of day, day of week.

The experiment will involve some subjects signing a petition and then given the option to donate to the cause, while others donate to the cause and then are asked to sign a petition. This design feature can provide insight into whether people are more inclined to make monetary

contributions to a cause they have already shown support by a non-monetary means, and vice versa. Change.org is an online portal that promotes petitions on a wide variety of public concerns to different governing bodies, and they have access to members from all across the world. This portal can act as a platform to promote the different attribute petitions and the members are the subject pool. This can be utilized to see whether there is a difference in the number of signatures between the different treatments. The same subjects who sign the petitions can then choose to donate to the cause. The petition and the donation pitch will be framed focusing on the attributes mentioned above.

The petition aspect of the design is explained as follows. The subjects when they visit the Change.org site will see one of the four variations of the message and they will be asked to sign one of the randomly chosen versions of online sponsored petition on Change.org site. The experiment comprises two framing contrasts that will be combined in a 2x2 experimental design.

Biocentric Conservation versus Anthropocentric Conservation: This framing contrast focuses on the beneficiaries of the donation being requested. In the Biocentric framing, the request for donation will focus on how the project benefits the ecosystem and its charismatic species, particularly the whales. In the Anthropocentric framing, the ask focuses on how the project benefits humans living around Laguna San Ignacio.

Market-based Conservation versus Traditional Collaboration with Local Communities: This framing contrast focuses on the means through which the benefits are achieved. In the Market-based framing, the petition request focuses on the communal, performance-based conservation payments in the terrestrial, coastal ecosystem (and perhaps the direct acquisition of land). In the Traditional framing, the request focuses on efforts to encourage alternative livelihoods (e.g., ecotourism) and technologies (e.g., four-stroke engines) and to promote conservation education.

These framings will be crossed, creating four treatment messages in a 2x2 design.

	Traditional	**Market-Based**
Anthropocentric	Focus on benefits to local human communities using traditional conservation means.	Focus on benefits to local human communities using performance payment means.
Biocentric	Focus on benefits to ecosystem and charismatic species using traditional conservation means.	Focus on benefits to ecosystem and charismatic species using payment based incentives.

Table 17 Treatment Design

The donation portion of the experiment will also focus on the four different attributes and the donation page will also follow a similar format as the petitions where subjects see one of the four versions randomly and are asked to donate to the cause. Any significant variation in donation can help us better understand what attributes of a charity are more important to donors.

Experimental Protocol

Four different framed petitions are created that Change.org has to show to the supporters.Change.org sends out emails with a brief summary of the petition and a link to go sign it to its registered users who have previously signed a petition. Change.org will host restricted access versions of all four petitions and the subjects will get one of the four versions email randomly, where they can go to the link and read the petition and choose to sign it. Once petition is signed, the subjects then will provide the following demographic information.

- Full name
- Email address
- Street level address including city, state and zip code
- And optional reason for signing. This might provide some further insight into what motivates individuals in these environmental causes.

Once the subjects have signed the petition, they will be directed to the donation page that is framed in the same way as the petition that they signed. Some of the subjects will see the donation page first followed by the petition page. In this scenario, an email similar to the petition email is sent out with one of the four framed messages and the subjects can go to a restricted webpage to read more about the cause and donate to it. Demographic information is collected, and the subjects are directed to the petition page.

Conclusion

This paper provides a general discussion on how attributes of a public good can have an effect on giving, and provides a theoretical framework along with a possible field experiment design to test the hypotheses. Individual giving is a significant portion of charitable giving, and while we have ample research to show what characteristics of an individual affect giving, we have little information on what characteristics of a charity affect giving. This paper provides a next step in that direction and possible future research and results in this area can help charitable organizations to design more effective donation pitches that are focused on attributes of the charity that donors show a preference towards.

Appendix A: Additional Figures and Tables for Chapter 1

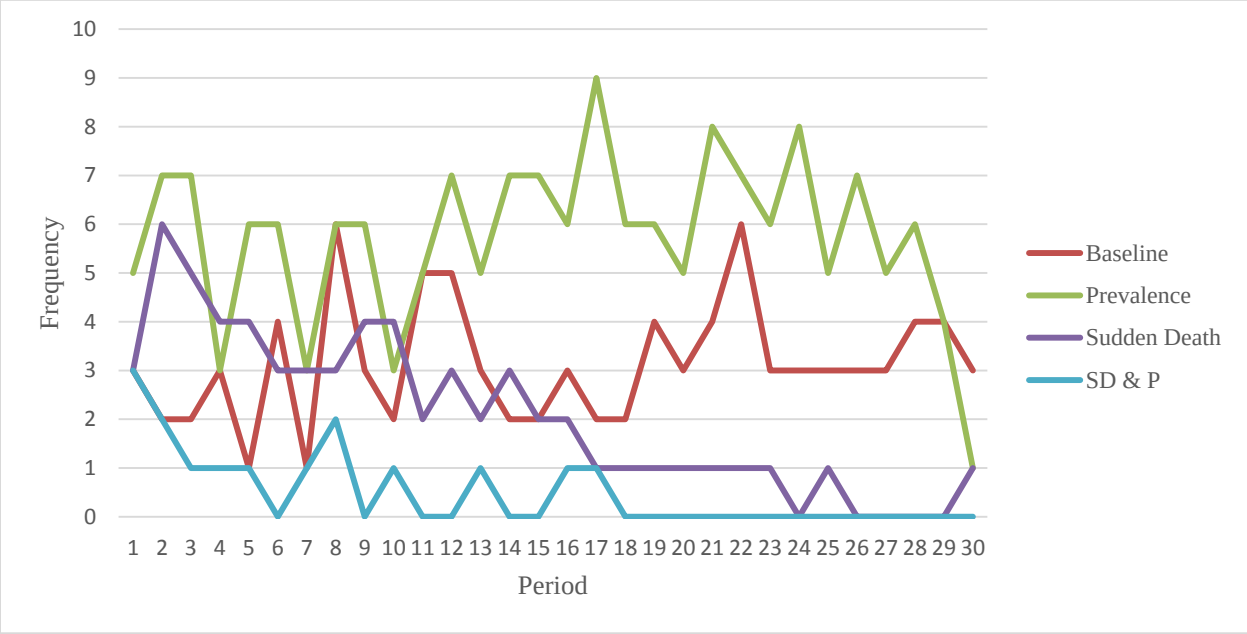

Figure A.1 Frequency of Y choices by SM over all periods

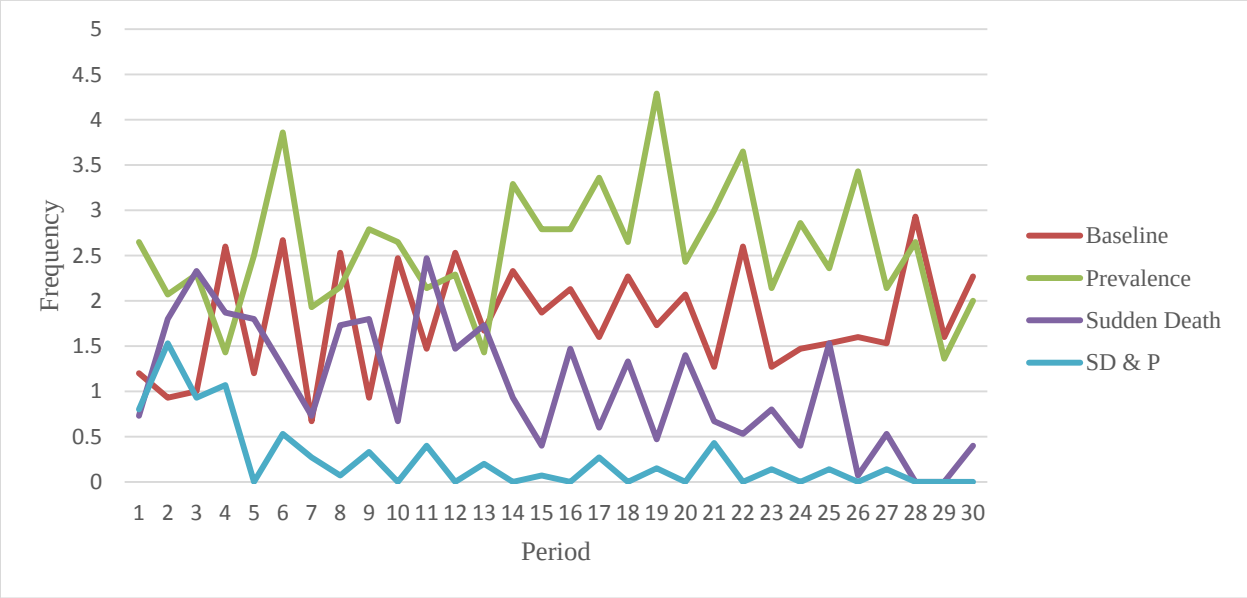

Figure A.2 Average Amount Transferred by FM across Periods

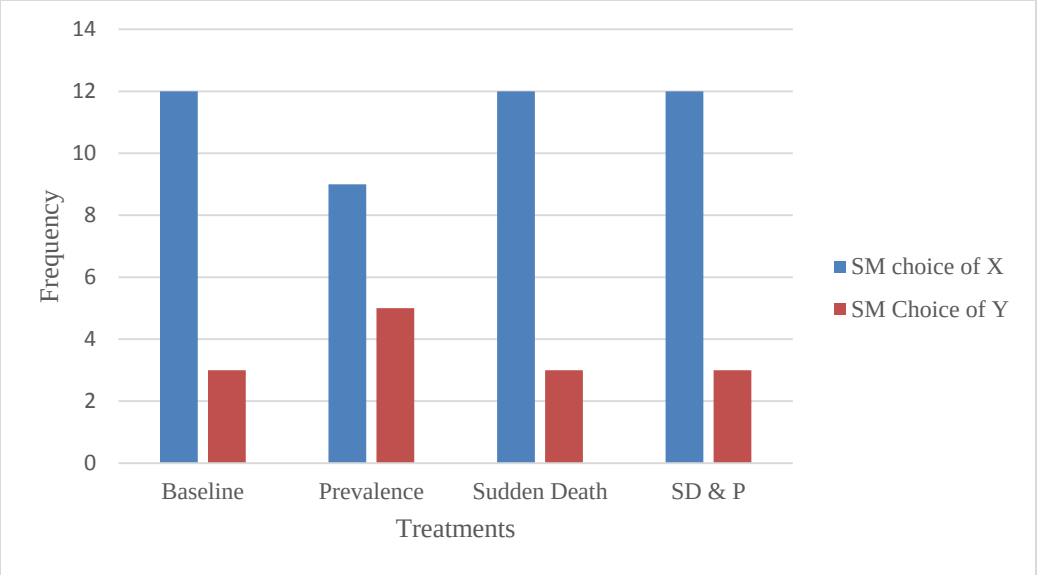

Figure A.3 First Period SM Choice of X or Y across Treatments

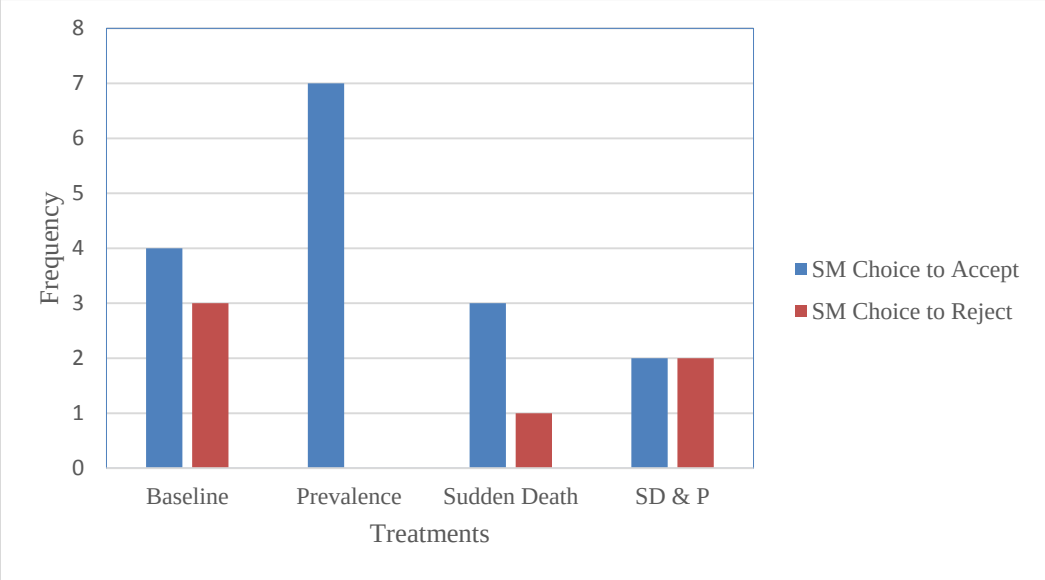

Figure A.4 First Period SM Choice to Accept or Reject Transfer

Appendix B: Instructions for Chapter 1 Experiment

Instructions for Baseline Treatment

This is an experiment in the economics of decision making. Various funding agencies have provided funds for this experiment. You will be paid for participating, and the amount of money you earn will depend on the decisions that you and the person you are paired with make. Before the experiment begins a box will be passed around with envelopes that contain keys with numbers on them. These numbers are the only way that you can be identified and you will be asked to input this number on your computer screen. At the end of the experiment, you can use the key to collect your earnings one person at a time from a mailbox which is placed in an adjacent room.

At the end of the experiment you will receive a minimum of $5 as a participation payment regardless of the decisions you make. On top of that you can earn an amount of money that will be based on yours and others' decisions in the experiment.

A total of 24 players are participating in this decision making experiment. There are three types of participants: 8 players are Player 1 (First Mover), 8 players are Player 2 (Second Mover), and 8 players are common people who will be randomly chosen to do an unrelated task to accumulate their earnings. Their decisions will not affect your earnings; however, your decisions might affect these common people's earnings. At the beginning of the experiment, the three types of participants will be determined randomly by the computer. The type of a participant remains unchanged throughout the experiment and the experiment will be for 30 periods. So if you were randomly chosen to be a First Mover (FM) then you remain a FM for the entirety of the experiment. Each FM will be paired randomly with a Second Mover (SM) and that pairing will also remain the same for the whole experiment. So there will be 8 groups of two

people, where one is a FM and the other is a SM. The 8 common people are not part of the 8 groups.

The experiment consists of 30 periods. At the end of the experiment you will receive a payoff that depends on your decisions and the decision of your paired person. Your account will be credited with your period earnings at the end of each period. Each period is a new round of decisions. At the end of the experiment you will be able to collect your cumulative earnings over all periods.

Decision Situation in a Period

The payoff table which is given to you along with these instructions shows all the possible decisions and the related payoffs that you may get today. This will help you get a clear picture of how your payoff will be affected given the decision you make. Refer to the table when making your decisions. During the experiment, we will be using Experimental Dollars (ED) which will be converted to U.S. Dollars at the end of the experiment at the exchange rate mentioned below. The decision making process for each period is explained below.

Player 1 or FM starts the period with the decision to transfer or not to transfer an amount to Player 2 or SM. If FM decides to transfer then his account balance is reduced by 2 ED. If he decides not to transfer then his account balance remains the same and the decision opportunity passes to SM. The decision making processes are explained below. The first process explains the steps if the FM decides **not to transfer** an amount, and the second process explains the steps if the FM decides to **transfer** an amount.

FM Decides Not to Transfer:

Once FM decides not to transfer, then play goes to SM. He then has an option to choose one of the alternatives *X* or *Y*. If SM selects alternative *X*, then his account and the account of

FM in his group are increased by 36 ED each. The account balances of the 8 common people are not changed by this decision. Then the final period payoff for both FM and SM is 36.

If SM selects alternative *Y*, then FM's account balance is increased by 56 ED, and SM's account balance is increased by 30 ED. The account balance of each of the 8 common people is decreased by 6 ED by this decision. The final period payoff for FM is 56, and for SM is 30.

FM Decides to Transfer:

If the FM decides to transfer an amount, his account balance is reduced by 2 ED. Then he is presented with a second decision. He has to decide how much to transfer. FM can transfer any amount within 1, 2… 9. After this decision is made, play passes to SM and SM has to decide whether to accept or reject the offer.

- **If SM decides to reject:** If SM decides to reject, then he moves to the next decision and chooses between alternatives X and Y. Again if SM chooses X, then his account is increased by 36 and the account of FM in his group is increased by 34 ED. FM account balance is 34 ED because 2 ED was deducted when he decided to transfer an amount to SM. The account balances of the 8 common people are not changed by this decision.

  If SM selects alternative *Y*, then FM account balance is increased by 54ED (2ED was deducted when FM decided to transfer an amount to SM), and SM account balance is increased by 30 ED. The account balance of each of the 8 common people is decreased by 6 ED by this decision. The final period payoff for FM is 54, and for SM is 30.

- **If SM decide to Accept:** If SM decides to accept the transfer amount, then the FM account is reduced by the amount that he decided to transfer, and the SM

account is increased by tripled the amount that was transferred. Then SM makes their decision between alternative X and Y.

If SM chooses X, then FM payoff is 36 ED - 2 ED - Transferred Amount; and SM payoff is 36 ED + 3(Transferred Amount). The account balances of the 8 common people are not changed by this decision.

If SM chooses Y, then FM payoff is 56 ED - 2 ED – Transferred Amount; and SM payoff is 30 ED + 3 (Transferred Amount). The account balance of each of the 8 common people is decreased by 6 ED by this decision.

The period ends after all the decisions are made and the payoffs are decided accordingly. A new period starts with the same set of decisions to make. Your final payoff will be the cumulative payoff from all your periods.

In the instances where your group or other groups choose alternative Y, the common people will incur 6 ED losses each. Their total loss incurred due to all groups decisions will not be known to you. You will only know how much loss your group has created for the common people. These losses do not affect your own payoffs. You will play a total of 30 periods following the same procedure.

The payoffs

You receive your payoff at the end of the experiment for all your decisions made in the experiment; and the exchange rate is $1.00 for 50 ED. In addition, you receive a lump sum participation payment of $5.00 just for being here. We will calculate your cumulative payoff for the whole session and then convert that into U.S. dollars from experimental dollars by using the above stated exchange rate.

For the following instructions only the part that is different from the Baseline instruction is noted:

Instructions for the Prevalence Treatment (additions):

In this experiment you will be given information on the behavior of other groups in the experiment and the total loss that was incurred by the common people. You will be able to get a view of overall behavior in the economy; the total amount of loss to the common people due to groups choosing Y will be revealed to you at the end of each period. You will not be shown the identity of the individuals who have made the decisions but will be shown the decisions. For example, if one group chose the option Y, you will be given this information, but you will not know who those people are. You will know then how many groups chose Y. These losses do not affect your own payoffs. You will play a total of 30 periods following the same procedure.

Instructions for the Sudden Death Treatment (additions)

If SM decides to Accept: If SM decides to accept the transfer amount, a lottery will be played. In the lottery, a number will be randomly drawn out of the range from 1 to 100. If the randomly drawn number is 1, 2 or 3 then SM and the FM matched will be disqualified. That means: The decision making ends for these two players, and they do not receive any payment for the decisions, i.e. the experimental dollars that have been earned in the past are also removed from their accounts. At the end of the experiment, both players will receive the participation payment of $5. The disqualified participants fill in a questionnaire, until the experiment ends. For the other participants, the experiment continues normally.

If the randomly drawn number is 4, 5... 99, or 100, then the round continues. FM account is reduced by the amount that he decided to transfer, and the SM account

is increased by tripled the amount that was transferred. Then SM makes their decision between alternative X and Y.

If SM chooses X, then FM payoff is 36 ED - 2 ED - Transferred Amount; and SM payoff is 36 ED + 3(Transferred Amount). The account balances of the 8 common people are not changed by this decision.

If SM chooses Y, then FM payoff is 56 ED - 2 ED – Transferred Amount; and SM payoff is 30 ED + 3(Transferred Amount). The account balance of each of the 8 common people is decreased by 6 ED by this decision.

The period ends after all the decisions are made and the payoffs are decided accordingly. A new period starts with the same set of decisions to make. Your final payoff will be the cumulative payoff from all your periods.

In the instances where your group or other groups chose alternative Y, and do not get disqualified the common people will incur 6 ED losses each. Their total loss incurred due to all groups decisions will not be known to you. You will only know how much loss your group has created for the common people. These losses do not affect your own payoffs. You will play a total of 30 periods following the same procedure.

(Note: For the Sudden Death treatment with 10% probability the instructions remain the same, the probability changes to 10%, so when a ball is drawn, any number between and including 1 and 10 will disqualify the players.

Instructions for the Prevalence Treatment along with Sudden Death Treatment

If SM decides to Accept: If SM decides to accept the transfer amount, a lottery will be played. In the lottery, a number will be randomly drawn out of the range from 1 to 100. If the randomly drawn number is 1, 2 or 3 then SM and the FM matched will be disqualified. That

means: The decision making ends for these two players, and they do not receive any payment for the decisions, i.e. the experimental dollars that have been earned in the past are removed from their accounts. At the end of the experiment, both players will receive the participation payment of $5. The disqualified participants fill in a questionnaire, until the experiment ends. For the other participants, the experiment continues normally.

> If the randomly drawn number is 4, 5... 99, or 100, then the round continues. FM account is reduced by the amount that he decided to transfer, and the SM account is increased by tripled the amount that was transferred. Then SM makes their decision between alternative X and Y.
>
> If SM chooses X, then FM payoff is 36 ED - 2 ED - Transferred Amount; and SM payoff is 36 ED + 3(Transferred Amount). The account balances of the 16 common people are not changed by this decision.
>
> If SM chooses Y, then FM payoff is 56 ED - 2 ED – Transferred Amount; and SM payoff is 30 ED + 3(Transferred Amount). The account balance of each of the 16 common people is decreased by 6 ED by this decision.

The period ends after all the decisions are made and the payoffs are decided accordingly. A new period starts with the same set of decisions to make. Your final payoff will be the cumulative payoff from all your periods.

In the instances where your group or other groups choose alternative Y and do not get disqualified, the common people will incur 6 ED losses each. **In this experiment you will be given information on the behavior of other groups in the experiment and the total loss that was incurred by the common people.** You will be able to get a view of overall behavior in the economy; the total amount of loss to the common people due to groups choosing Y will be

revealed to you at the end of each period. You will not be shown the identity of the individuals who have made the decisions but will be shown the decisions. For example, if one group chose the option Y, you will be given this information, but you will not know who those people are. You will know then how many groups chose Y. These losses do not affect your own payoffs. You will play a total of 30 periods following the same procedure.

(Note: For the Sudden Death and Prevalence treatment with 10% probability the instructions remain the same, the probability changes to 10%, so when a ball is drawn, any number between and including 1 and 10 will disqualify the players.

Appendix C: Payoff Table for Chapter 1

Payoff Table Showing Possible Payoff for Each Decision Made

Round Payoff if Second Mover **Accepts** Transfer

Transferred Amount	1		2		3		4		5		6		7		8		9	
Second Mover Decision	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
First Mover Payoff	33	53	32	52	31	51	30	50	29	49	28	48	27	47	26	46	25	45
Second Mover Payoff	39	33	42	36	45	39	48	42	51	45	54	48	57	51	60	54	63	57
The 16 Common People Loss per Person	0	-6	0	-6	0	-6	0	-6	0	-6	0	-6	0	-6	0	-6	0	-6

Round Payoff if Second Mover **Rejects** Transfer

Transferred Amount	Any Transfer Amount between 1 to 9	
Second Mover Decision	X	Y
First Mover Payoff	34	54
Second Mover Payoff	36	30
The 16 Common People Loss per Person	0	-6

Round Payoff if First Mover **Does Not Transfer**

Transferred Amount	**0**	
Second Mover Decision	X	Y
First Mover Payoff	36	56
Second Mover Payoff	36	30
The 16 Common People Loss per Person	0	-6

Appendix D: Instruction for Passive Players for Chapter 1

If you are one of the 8 subjects randomly chosen to be common people you will not need to make any decisions as FM or SM. You will fill out a questionnaire at the end of the experiment and also take part in an unrelated task that will let you earn a considerable amount of money. The task you will do today is adding numbers. You will be given a series of numbers that you have to add each round. Each correct answer will earn you 6 Experimental Dollars (ED). You do not lose any money for wrong answers. The maximum amount you can earn per round is 60 ED. The amount of money that you earn at the end of the experiment will also depend on the decisions of the other 16 players who are playing as FM or SM. Their decisions can result in a maximum of 48 ED losses per round to you, or a minimum of 0 ED losses per round. Your decisions do not affect the other players' payoffs.

The payoffs

You receive your payoff at the end of the experiment. The exchange rate is $1.00 for 50 ED. In addition, you receive a lump participation payment of $5.00 just for being here. We will calculate your cumulative payoff for the whole session and then convert that into U.S. dollars from Experimental Dollars using the above exchange rate.

Appendix E: Chapter 1 Experiment Questionnaire

1. What is your sex?
    - Male
    - Female
2. What is your age?
3. What is your class standing?
    - Freshman
    - Sophomore
    - Junior
    - Senior
    - Masters
    - Doctoral
    - Does not apply
4. What is your intended or declared major?
5. Which of the following category best describes you?
    - White
    - African-American
    - Asian
    - Hispanic
    - Mixed Race
    - Other
6. On a 4-point scale, what is your current GPA if you are doing a Bachelor's degree, or what was it when you did a Bachelor's degree? This GPA should refer to all of your coursework, not just the current year.

7. Please choose between the two lotteries (option A and Option B) in each of the following scenarios:[9]

	Option A	Option B
1	1/10 of $2.00, 9/10 of $1.60	1/10 of $3.85, 9/10 of $0.10
2	2/10 of $2.00, 8/10 of $1.60	2/10 of $3.85, 8/10 of $0.10
3	3/10 of $2.00, 7/10 of $1.60	3/10 of $3.85, 7/10 of $0.10
4	4/10 of $2.00, 6/10 of $1.60	4/10 of $3.85, 6/10 of $0.10
5	5/10 of $2.00, 5/10 of $1.60	5/10 of $3.85, 5/10 of $0.10
6	6/10 of $2.00, 4/10 of $1.60	6/10 of $3.85, 4/10 of $0.10
7	7/10 of $2.00, 3/10 of $1.60	7/10 of $3.85, 3/10 of $0.10
8	8/10 of $2.00, 2/10 of $1.60	8/10 of $3.85, 2/10 of $0.10
9	9/10 of $2.00, 1/10 of $1.60	9/10 of $3.85, 1/10 of $0.10
10	10/10 of $2.00, 0/10 of $1.60	10/10 of $3.85, 0/10 of $0.10

[9] Holt & Laury (2002)

Appendix F: Experiment Instructions for Chapter 2

General Instructions

This is an experiment in the economics of decision making. Various funding agencies have provided funds for this experiment. You will be paid for participating, and the amount of money you earn will depend on the decisions that you and others participating in the experiment make. Before the experiment begins a box will be passed around with envelopes that contain keys with numbers on them. These numbers are the only way that you can be identified and you will be asked to input this number on your computer screen. At the end of the experiment, you can use the key to collect your earnings one person at a time from a mailbox which is placed in an adjacent room.

At the end of the experiment you will receive a minimum of $5 as a participation payment regardless of the decisions you make. On top of that you can earn an amount of money that will be based on yours and others' decisions in the experiment.

There will be two unrelated tasks that you will participate in today. You will receive specific instructions related to each task before that task begins. Your decisions in one task will not affect the other task, so you should make decisions based on what the task requires and independently of any upcoming task. You will know the potential payouts for each of the tasks when you complete the task. At the end of the experiment, a coin will be flipped and you will be paid for one of the two tasks that you participated in. A coin will be flipped in your presence to determine which task gets paid out. If head comes up, you will be paid for the first task, and if tail comes up, you will be paid for the second task. You will also complete a questionnaire during the session.

Investment Game Instruction

In this task, you will be randomly assigned to one of two groups, Group X or Group Y. Each person from Group X will be randomly paired with a person in Group Y. You will not know the identity of the person you are paired with. Each person in Group X and Group Y will receive an endowment of $10.

If you are in Group X, you will decide whether to keep all of your $10 endowment or give some or all of it to your paired person in Group Y. Every dollar that you give to the person in Group Y will be tripled by the experimenters. The following table shows how this works.

If the Group X Person Gives	The Experimenters Triple the Amount	And the Group Y Person Receives
0	3*0	0
1	3*1	3
2	3*2	6
3	3*3	9
4	3*4	12
5	3*5	15
6	3*6	18
7	3*7	21
8	3*8	24
9	3*9	27
10	3*10	30

After the Group X people have made their decisions, the people in Group Y will receive the tripled number of dollars given by their paired Group X person. If you are in Group Y, you will decide whether to return some, all, or none of the tripled amount to the same person in Group X who gave them.

If this task is randomly chosen for payout (by the coin flip), then your payoffs will be determined as follows. If you are in Group X, your payoff will be any amount left of your $10 endowment after transfers to Group Y person plus any amount that Group Y person returned to

you. If you are in Group Y, your payoff will be your endowment of $10 plus any amount of money left after your return transfer to your Group X person.

Repeated Public Goods Game Instruction

In this task, you will be randomly matched with 3 other people to form a group. Thus, each group will contain 4 individuals. You will not know the identity of the others in your group. Your payoff will depend on the decisions you make as well as the decisions of your other group members. Each individual in your group will be endowed with $10 in their Private Fund. Each four person group begins with a Group Fund of $0.

Each one of you will decide independently and privately whether or not to move any of your money from your Private Fund into the Group Fund. You can move up to a maximum of $10 to the Group Fund. Each dollar that you add to the Group Fund reduces your Private Fund by $1. However, each dollar added to the Group Fund by a group member increases the value of the Group Fund by $3.

After all the group members have made their decisions, the Group Fund will be divided equally among all individuals in the group. This amount will be added to the amount you have remaining in your Private Fund. Thus, your total earnings will equal the ending dollar amount remaining in your Private Fund plus one-fourth of the ending dollar amount in the Group Fund.

Below you will find three examples of how the money moved to the Group Fund are related to the Private Fund and Group Fund.

- If a person adds $0 to the Group Fund, that reduces the value of their Private Fund by $0 and adds $0 to the value of the Group Fund.
- If a person adds $5 to the Group Fund, that reduces the value of their Private Fund by $5 and adds $15 to the value of the Group Fund.

- If a person adds $10 to the Group Fund, that reduces the value of their Private Fund by $10 and adds $30 to the value of the Group Fund.

You will play 10 rounds of this task and at the end of each round you will know what your payoff was in that round. You will play all 10 rounds with the same group. Each round is an independent decision, and you should consider your decision in each round carefully.

In each round of this task, some of you will be given additional information about your group members. While you will still not know the identity of your group members, some of you will be given information on the decisions that your group members made in task 1. This information will give you some insight into their behavior. You can consider this additional information while making your decisions.

If this task is chosen for payout (by the coin flip), then a numbered ball will be randomly drawn out of an urn to choose one out of the ten rounds to be paid out. For example, if ball number 3 is drawn, round 3 will be paid out.

Appendix G: Chapter 2 Experiment Questionnaire

1. What is your sex?
    - Male
    - Female
2. What is your age?
3. What is your class standing?
    - Freshman
    - Sophomore
    - Junior
    - Senior
    - Masters
    - Doctoral
    - Does not apply
4. What is your intended or declared major?
5. Which of the following category best describes you?
    - White
    - African-American
    - Asian
    - Hispanic
    - Mixed Race
    - Other
6. On a 4-point scale, what is your current GPA if you are doing a Bachelor's degree, or what was it when you did a Bachelor's degree? This GPA should refer to all of your coursework, not just the current year.

7. Generally speaking, on a scale of 1 to 5, would you say that most people can be trusted (1) or you can't be too careful in dealing with people (5)? (select only one)

    1 2 3 4 5

8. On a scale of 1 to 5, would you say that most people are willing to help if you need it (1), or one has to be alert or someone will take advantage of you (5)? (select only one)

    1 2 3 4 5

9. On a scale of 1 to 5, would you say that most of the time people try to be helpful (1), or that they are mostly just looking out for themselves (5)? (select only one)

    1 2 3 4 5

Appendix H : Petition and Donation Messages for Chapter 3

Petition: Anthropocentric & Market-based

Protect the Vulnerable Fishing Communities in Baja California through Critical Community Fund

Request the Mexican Government to continue their support for the vulnerable fishing communities in Baja California, and take a stance on enforcing environmental protection rules to save them from continuing threats from neighboring areas.

Laguna San Ignacio Conservation Alliance supports vulnerable fishing communities in Baja California by protecting their livelihoods and adapting to climate change through providing conditional payments to the community to protect the coastal land. The Alliance has been successfully helping the vulnerable fishing community through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and the livelihoods of its human neighbors. To achieve this goal, the Alliance pays local communities $25,000 a year, conditional on the community protecting its sensitive coastal lands (no protection, no money). The money provides residents with critical community funds, and provides the ecosystem with the protection it needs. The alliance is committed to improving the quality of life for the people living in the lagoon.

However, there is continuing threat that arise for these fishing communities outside of the lagoon which impact their livelihood. A phosphate mining project is undergoing in the area which is affecting the larvae travelling path and fishing activity because of dredging that sucks the ocean floor to remove phosphate.

Pleas urge the Mexican Government to continue to uphold their stringent environmental protection regulations for pristine sites like Laguna San Ignacio and protect the vulnerable

fishing communities from continuing threats. To support this innovative initiative, sign the petition to the Mexican federal government.

Donation: Anthropocentric & Market-based

Donate to Support the Alliance in their Efforts to Help the Vulnerable Fishing Communities in Baja California through Conditional Payments

Laguna San Ignacio Conservation Alliance supports vulnerable fishing communities in Baja California by protecting their livelihoods and adapting to climate change through providing conditional payments to the community to protect the coastal land. The Alliance has been successfully helping the vulnerable fishing community through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and the livelihoods of its human neighbors. To achieve this goal, the Alliance pays local communities $25,000 a year, conditional on the community protecting its sensitive coastal lands (no protection, no money). The money provides residents with critical community funds, and provides the ecosystem with the protection it needs. The alliance is committed to improving the quality of life for the people living in the lagoon.

Your donation today can help fund the Alliance in its' continuing effort to help the vulnerable fishing communities and provide conditional payment that will also help protect the coastal land. To support this innovative initiative, donate to the Alliance through [the International Community Fund]

Petition: Anthropocentric & Traditional

Protect the Vulnerable Fishing Communities in Baja California through Alternative Livelihood

Request the Mexican Government to continue their support for the vulnerable fishing communities in Baja California, and take a stance on enforcing environmental protection rules to save them from continuing threats from neighboring areas.

Laguna San Ignacio Conservation Alliance supports vulnerable fishing communities in Baja California by protecting their livelihoods and adapting to climate change through providing training in alternative sustainable forms of livelihood. The Alliance has been successfully helping the vulnerable fishing community through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and the livelihoods of its human neighbors. To achieve this goal, the Alliance invests in community-based ecotourism operators with training, ecotourism certifications and tourism development. The money provides residents with alternative livelihoods, and provides the ecosystem with the protection it needs. Since 2000 the Alliance has been investing in these trainings and 70% of trainees report an increase in their earnings. The alliance is committed to improving the quality of life for the people living in the lagoon.

However, there is continuing threat that arise for these fishing communities outside of the lagoon which impact their livelihood. A phosphate mining project is undergoing in the area which is affecting the marine life in the lagoon and thus ecotourism.

Pleas urge the Mexican Government to continue to uphold their stringent environmental protection regulations for pristine sites like Laguna San Ignacio and protect the vulnerable fishing communities from continuing threats. To support this innovative initiative, sign the petition to the Mexican federal government.

Donation: Anthropocentric & Traditional

Donate to Support the Alliance in their Efforts to Help the Vulnerable Fishing Communities in Baja California through Alternative Livelihood Training

Laguna San Ignacio Conservation Alliance supports vulnerable fishing communities in Baja California by protecting their livelihoods and adapting to climate change through providing training in alternative sustainable forms of livelihood. The Alliance has been successfully helping the vulnerable fishing community through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and the livelihoods of its human neighbors. To achieve this goal, the Alliance invests in community-based ecotourism operators with training, ecotourism certifications and tourism development. The money provides residents with alternative livelihoods, and provides the ecosystem with the protection it needs. Since 2000 the Alliance has been investing in these trainings and 70% of trainees report an increase in their earnings. The alliance is committed to improving the quality of life for the people living in the lagoon.

Your donation today can help fund the Alliance in its' continuing effort to help the vulnerable fishing communities and provide training for sustainable alternative livelihood. To support this innovative initiative, donate to the Alliance through [the International Community Fund]

Petition: Biocentric & Market-based

Protect the Grey Whales in Baja California through Critical Community Fund

Request the Mexican Government to continue their support to protect the grey whales in Baja California, and take a stance on enforcing environmental protection rules to save them from continuing threats from neighboring areas.

Laguna San Ignacio Conservation Alliance helps protect Baja California's Laguna San Ignacio, a critical site for reproduction and wintering of grey whales, harbor seals, sea lions, elephant seals and blue whales, as well as home to four species of the endangered marine. The Alliance has been successfully helping the grey whales through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and its incredible biological diversity. To achieve this goal, the Alliance pays local communities $25,000 a year, conditional on the community protecting its sensitive coastal lands (no protection, no money). The money provides residents with critical community funds, and provides the ecosystem with the protection it needs. This investment has helped to provide permanent protection to nearly 141,000 acres of key coastal lands around the lagoon that ensures the continuing protection of grey whales and the other endangered species in the lagoon. The easement payment permanently restricts development activities on these sensitive coastal lands and ensures their long-term conservation.

However, there is continuing threat that arise for the grey whales that affect their migration path. A phosphate mining project is undergoing in the area which is affecting the grey whales and their reproduction site because of dredging that sucks the ocean floor to remove phosphate.

Please urge the Mexican Government to continue to uphold their stringent environmental protection regulations for pristine sites like Laguna San Ignacio and protect the grey whales from

continuing threats. To support this innovative initiative, sign the petition to the Mexican federal government.

Donation: Biocentric & Market-based

Donate to Support the Alliance in their Efforts to Help Protect the Grey Whales in Baja California through Conditional Payments

Laguna San Ignacio Conservation Alliance helps protect Baja California's Laguna San Ignacio, a critical site for reproduction and wintering of grey whales, harbor seals, sea lions, elephant seals and blue whales, as well as home to four species of the endangered marine. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and its incredible biological diversity. To achieve this goal, the Alliance pays local communities $25,000 a year, conditional on the community protecting its sensitive coastal lands (no protection, no money). The money provides residents with critical community funds, and provides the ecosystem with the protection it needs. This investment has helped to provide permanent protection to nearly 141,000 acres of key coastal lands around the lagoon that ensures the continuing protection of grey whales and the other endangered species in the lagoon. The easement payment permanently restricts development activities on these sensitive coastal lands and ensures their long-term conservation.

Your donation today can help fund the Alliance in its' continuing effort to help the grey whales and provide conditional payment to protect the coastal area that is critical to the grey whales. To support this innovative initiative, donate to the Alliance through [the International Community Fund]

Petition: Biocentric & Traditional

Protect the Grey Whales in Baja California through Alternative Livelihood Training

Request the Mexican Government to continue their support to protect the grey whales in Baja California, and take a stance on enforcing environmental protection rules to save them from continuing threats from neighboring areas.

Laguna San Ignacio Conservation Alliance helps protect Baja California's Laguna San Ignacio, a critical site for reproduction and wintering of grey whales, harbor seals, sea lions, elephant seals and blue whales, as well as home to four species of the endangered marine. The Alliance has been successfully helping the grey whales through their efforts and the support from the Mexican Government. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and its incredible biological diversity. To achieve this goal, the Alliance invests in community-based ecotourism operators with training, ecotourism certifications and tourism development to create alternate livelihoods and move the communities away from fishing and destroying the ecosystem. The money provides residents with alternative livelihoods, and provides the ecosystem with the protection it needs. The ecotourism training has helped in teaching the operators to aim for more sustainable tourism that promote conservation. The alliance is committed to protecting the grey whales and their breeding area, and to conserve the lagoon.

However, there is continuing threat that arise for the grey whales that affect their migration path. A phosphate mining project is undergoing in the area which is affecting the grey whales and their reproduction site because of dredging that sucks the ocean floor to remove phosphate.

Please urge the Mexican Government to continue to uphold their stringent environmental protection regulations for pristine sites like Laguna San Ignacio and protect the grey whales from

continuing threats. To support this innovative initiative, sign the petition to the Mexican federal government.

Donation: Biocentric & Traditional

Donate to Support the Alliance in their Efforts to Help Protect the Grey Whales in Baja California through Sustainable Alternative Livelihood

Laguna San Ignacio Conservation Alliance helps protect Baja California's Laguna San Ignacio, a critical site for reproduction and wintering of grey whales, harbor seals, sea lions, elephant seals and blue whales, as well as home to four species of the endangered marine. The goal of the Alliance is to provide permanent protection for Laguna San Ignacio ecosystem and its incredible biological diversity. To achieve this goal, the Alliance invests in community-based ecotourism operators with training, ecotourism certifications and tourism development to create alternate livelihoods and move the communities away from fishing and destroying the ecosystem. The money provides residents with alternative livelihoods, and provides the ecosystem with the protection it needs. The ecotourism training has helped in teaching the operators to aim for more sustainable tourism that promote conservation. The alliance is committed to protecting the grey whales and their breeding area, and to conserve the lagoon.

Your donation today can help fund the Alliance in its' continuing effort to help the grey whales and provide training for alternative livelihood which help protect the coastal area that is critical to the grey whales. To support this innovative initiative, donate to the Alliance through [the International Community Fund]

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